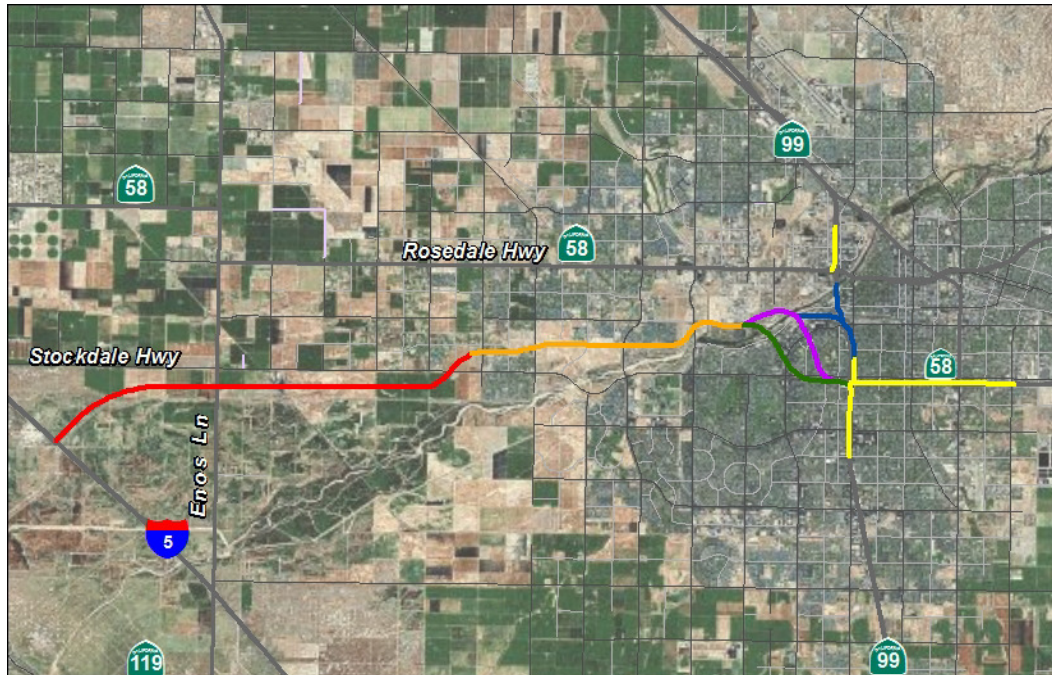


Centennial Corridor Project NES



Final Natural Environment Study

State Route 99 to Interstate 5
KERN COUNTY, CALIFORNIA

District 06 - KERN – 58 - PM T31.7 to PM R55.6

District 06 - KERN – 99 - PM 21.2 to PM 26.2

Project ID# 06-0000-0484

March 2013
(Revised April 2015)



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Final Natural Environment Study

Centennial Corridor Project

STATE OF CALIFORNIA

Department of Transportation

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Summary

This Natural Environment Study (NES) has been prepared to support National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) documentation for the proposed Centennial Corridor Project (hereafter referred to as “the project”) located at the southern end of the San Joaquin Valley in the city of Bakersfield and in unincorporated Kern County, California.

The California Department of Transportation (Caltrans) proposes to establish a new alignment for State Route 58, which would provide a continuous route along State Route 58 from Interstate 5 via the Westside Parkway to Cottonwood Road on existing State Route 58, east of State Route 99 (post miles T31.7 to R55.6). Improvements to State Route 99 (post miles 21.2 to 26.2) would also be required to accommodate the connection with State Route 58.

The proposed continuous route, known as the Centennial Corridor, has been divided into three segments. Segment 1 is the easternmost segment, which would connect what is locally known as the Westside Parkway to the existing State Route 58 (East) freeway. This segment is all new construction and multiple alignment alternatives are being evaluated. Segment 2 is composed of the Westside Parkway and extends from about Mohawk Street to Heath Road. The analysis for Segment 2 evaluates potential new impacts associated with incorporating the Westside Parkway into the state highway system rather than the parkway operating as a local roadway. Segment 3 extends from Heath Road to Interstate 5. The timing for construction of the remainder of this segment is unknown, but construction would not occur until there is sufficient funding and greater traffic demand. Traffic would use Stockdale Highway between Heath Road and Interstate 5 on an interim basis, so the analysis will also evaluate potential impacts of interim use of Stockdale Highway to access Interstate 5. In conjunction with the construction of Segment 1, improvements to the Stockdale Highway/State Route 43 (known locally as Enos Lane) intersection would be made to accommodate additional traffic.

The technical study focuses on Segment 1 and the improvements at the Stockdale Highway/State Route 43 intersection. Segments 2 and 3 are discussed in separate technical memorandums in Appendices A and B.

Project Purpose and Need

The purpose and need of the Centennial Corridor project is to improve route continuity along State Route 58 within Metropolitan Bakersfield and Kern County from the existing State Route 58/State Route 99 freeway interchange to Interstate 5.

Biological Study Area

The biological study area for the project includes the proposed alignment and alternatives plus a 500-foot buffer area on each side of the project right-of-way. The data provided in this report for Segment 1 were taken from biological studies done in the spring/summer of 2008 and spring/summer of 2009. Surveys were conducted in 2012 for the improvements at Stockdale Highway and State Route 43.

Most of the biological study area is highly urbanized. Biological resources are generally found along the Kern River or in undeveloped areas interspersed within or on the edge(s) of development, such as canals, oil refinery lands, and vacant lots. Vegetation types and other areas in the biological study area include non-native grassland, riparian woodland/Great Valley cottonwood riparian forest, waterways, detention basin, disturbed/ruderal, agriculture, and developed/ornamental.

Special-Status Plant and Wildlife Species

Thirty-two special-status plant species are known to occur in the project region (the 10-mile radius surrounding the biological study area); of these, 23 have potential to occur in the biological study area. Forty-one special-status wildlife species are known to occur in the project region; of these, 17 have potential to occur in the biological study area.

The only special-status plant species observed in the biological study area was Ferris' goldfields (*Lasthenia ferrisiae*), a California Native Plant Society (CNPS) List 4.2 species. The San Joaquin kit fox (*Vulpes macrotis mutica*), a federally endangered and state threatened species, was observed in the biological study area. Focused surveys were conducted for the burrowing owl (*Athene cunicularia*), a California Department of Fish and Wildlife (formerly known as the California Department of Fish and Game) Species of Special Concern, and Swainson's hawk (*Buteo swainsoni*), a California Department of Fish and Wildlife threatened species; neither was observed. The burrowing owl has potential to occupy burrows in the biological study area in the future, and the Swainson's hawk has a limited potential to nest along the Kern River in the future.

Special-Status Species/Habitat Impacts

The project's impact on vegetation types/habitat areas is shown in Table ES-1; the impact on U.S. Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife jurisdictional areas is shown in Tables ES-2 and ES-3. Special-status species that would be impacted by the project include Ferris' goldfields, the San Joaquin kit fox, and potentially nesting burrowing owls and Swainson's hawks.

Table ES-1
Vegetation Types/Habitat Areas that would be Impacted by the Project

| Vegetation Types | Segment 1 | | | | | | |
|---|---------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | Existing (Acres) | Alternative A | | Alternative B | | Alternative C | |
| | | Perm (Acres) | Temp (Acres) | Perm (Acres) | Temp (Acres) | Perm (Acres) | Temp (Acres) |
| Non-Native Grassland | 405.41 | 19.19 | 46.91 | 5.70 | 47.63 | 4.73 | 40.44 |
| Riparian Woodland/Great Valley Cottonwood Riparian Forest | 39.92 | 0.35 | 3.19 | 0.00 | 1.84 | 0.00 | 1.42 |
| Waterways | 102.89 | 1.11 | 6.54 | 0.36 | 4.94 | 0.76 | 4.93 |
| Detention Basin | 47.32 | 0.64 | 0.08 | 0.84 | 0.01 | 0.00 | 0.75 |
| Disturbed/Ruderal | 151.84 | 3.09 | 13.42 | 3.36 | 13.44 | 4.69 | 13.91 |
| Agriculture | 143.81 | 0.06 | 0.80 | 0.00 | 0.00 | 0.06 | 0.80 |
| Total | 891.19 | 24.44 | 70.94 | 10.26 | 67.86 | 10.24 | 62.25 |
| Note: All alternatives include the improvements at Stockdale Highway and State Route 43. Perm=permanent; Temp=temporary See Figures 9-12 for the location of these impacts. | | | | | | | |

Summary

Table ES-2 Waters of the Jurisdiction of the U.S. Army Corps of Engineers and Regional Water Quality Control Board that would be Impacted by the Project

| Waters of the U.S. | Existing (Acres) | Permanent Structural Impact (Acres) ^a | | | Temporary Construction Impact (Acres) ^b | | | Total Impacts (Acres) | | |
|--------------------------------------|---------------------|---|------------------|------------------|---|------------------|------------------|--------------------------|------------------|------------------|
| | | Alternative A | Alternative B | Alternative C | Alternative A | Alternative B | Alternative C | Alternative A | Alternative B | Alternative C |
| Kern River | | | | | | | | | | |
| Wetlands | 0.112 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.00 | 0.009 | 0.000 | 0.000 |
| Other Waters | 68.740 | 0.144 | 0.009 | 0.022 | 3.541 | 3.421 | 5.980 | 3.685 | 3.430 | 6.002 |
| Arvin-Edison Canal | | | | | | | | | | |
| Other Waters | 0.924 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Calloway Canal | | | | | | | | | | |
| Other Waters | 2.312 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Carrier Canal | | | | | | | | | | |
| Open Water | 6.786 | 0.365 | 0.000 | 0.389 | 0.051 | 0.418 | 0.154 | 0.416 | 0.418 | 0.543 |
| Central Branch Kern Island Canal | | | | | | | | | | |
| Other Waters | 0.938 | 0.000 | 0.000 | 0.000 | 0.044 | 0.000 | 0.044 | 0.044 | 0.000 | 0.044 |
| Cross Valley Canal | | | | | | | | | | |
| Other Waters | 8.977 | 0.00 | 0.000 | 0.00 | 0.258 | 0.000 | 0.195 | 0.258 | 0.000 | 0.195 |
| Friant-Kern Canal | | | | | | | | | | |
| Other Waters | 3.058 | 0.000 | 0.000 | 0.000 | 0.409 | 0.000 | 0.333 | 0.409 | 0.000 | 0.333 |
| Kern Island Canal | | | | | | | | | | |
| Open Water | 1.051 | 0.000 | 0.000 | 0.000 | 0.020 | 0.000 | 0.020 | 0.020 | 0.000 | 0.020 |
| Stine Canal | | | | | | | | | | |
| Other Waters | 3.251 | 0.404 | 0.000 | 0.127 | 0.436 | 0.584 | 0.211 | 0.840 | 0.584 | 0.338 |
| Unnamed Canal | | | | | | | | | | |
| Other Waters | 0.732 | 0.000 | 0.000 | 0.000 | 0.044 | 0.000 | 0.000 | 0.044 | 0.000 | 0.000 |
| Detention Basins | | | | | | | | | | |
| Isolated Waters ^c | 4.413 | 0.000 | 0.009 | 0.000 | 0.000 | 0.000 | 0.972 | 0.000 | 0.009 | 0.972 |
| Stockdale Highway and State Route 43 | | | | | | | | | | |
| Wetlands | 0.083 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Other Waters | 38.799 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Total RWQCB | 140.176 | 0.913 | 0.018 | 0.538 | 4.812 | 4.423 | 7.909 | 5.725 | 4.441 | 8.447 |
| Total USACE | 135.763 | 0.913 | 0.009 | 0.538 | 4.812 | 4.423 | 6.937 | 5.725 | 4.432 | 7.475 |

^a Temporary impacts refer to construction access and staging areas; the temporary impact includes the areas under the bridges that will be accessed during construction.

^b Permanent structural impacts are due to proposed structures.

^c Isolated waters are within the jurisdiction of the Regional Water Quality Control Board but are not under the jurisdiction of the U.S. Army Corps of Engineers.

See Figures 13-16 for the location of the impacts.

**Table ES-3 Waters of the State Under the Jurisdiction of the
California Department of Fish and Wildlife that would be Impacted by the Project**

| Waters of the State | Existing (Acres) | Temporary Construction Impact (Acres) ^a | | | Permanent Structural Impact (Acres) ^b | | | Permanent Shade Impact (Acres) ^c | | | Total Impacts (Acres) | | |
|---|---------------------|--|--------------|---------------|--|--------------|--------------|--|--------------|--------------|--------------------------|--------------|---------------|
| | | Alt. A | Alt. B | Alt. C | Alt. A | Alt. B | Alt. C | Alt. A | Alt. B | Alt. C | Alt. A | Alt. B | Alt. C |
| Kern River | 96.054 | 9.268 | 4.705 | 7.881 | 3.333 | 0.013 | 0.032 | 2.692 | 1.495 | 1.619 | 12.601 | 4.718 | 7.913 |
| Arvin-Edison Canal | 1.158 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | N/A | N/A | N/A | 0.000 | 0.000 | 0.000 |
| Calloway Canal | 3.630 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | N/A | N/A | N/A | 0.000 | 0.000 | 0.000 |
| Carrier Canal | 8.153 | 0.088 | 0.454 | 0.204 | 0.410 | 0.000 | 0.446 | N/A | 0.352 | N/A | 0.498 | 0.454 | 0.650 |
| Central Branch Kern Island Canal | 1.032 | 0.048 | 0.000 | 0.048 | 0.000 | 0.000 | 0.000 | N/A | N/A | N/A | 0.048 | 0.000 | 0.048 |
| Cross Valley Canal | 15.251 | 0.476 | 0.000 | 0.316 | 0.000 | 0.000 | 0.000 | N/A | N/A | N/A | 0.476 | 0.000 | 0.316 |
| Friant-Kern Canal | 3.265 | 0.416 | 0.000 | 0.334 | 0.000 | 0.000 | 0.000 | 0.416 | N/A | N/A | 0.416 | 0.000 | 0.334 |
| Kern Island Canal | 1.156 | 0.023 | 0.000 | 0.023 | 0.000 | 0.000 | 0.000 | N/A | N/A | N/A | 0.023 | 0.000 | 0.023 |
| Stine Canal | 3.956 | 0.564 | 0.701 | 0.254 | 0.439 | 0.001 | 0.152 | N/A | 0.671 | N/A | 1.003 | 0.702 | 0.406 |
| Unnamed Canal | 1.639 | 0.085 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | N/A | N/A | N/A | 0.085 | 0.000 | 0.000 |
| Detention Basins | 7.852 | 0.024 | 0.000 | 1.727 | 0.000 | 0.175 | 0.000 | N/A | N/A | N/A | 0.024 | 0.175 | 1.727 |
| Stockdale Highway/State Route 43 Detention Basin | 39.091 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | N/A | N/A | N/A | 0.000 | 0.000 | 0.000 |
| Total | 182.237 | 10.992 | 5.860 | 10.787 | 4.182 | 0.189 | 0.630 | 3.108 | 2.518 | 1.619 | 15.174 | 6.049 | 11.417 |
| ^a Temporary impacts refer to construction access and staging areas; the temporary impact includes the areas under the bridges that will be accessed during construction. ^b Permanent structural impacts are due to proposed structures. ^c Permanent shade impacts are included for the Kern River (All Alternatives), Carrier Canal (Alternative B), Friant Kern Canal (Alternatives A and C), and Stine Canal (Alternative B); this impact is not applicable (N/A) to all other areas (e.g., box culverts). This impact represents the area under the bridge shaded at noon and overlaps with, or is equivalent to, the temporary impacts. Therefore, the "Total Impacts" column is the sum of the Temporary Construction Impact and the Permanent Structural Impact columns. See Figures 13-16 for the location of the impacts. | | | | | | | | | | | | | |

Indirect/Cumulative Impacts

Implementation of the project would result in permanent and temporary impacts on San Joaquin kit fox habitat, including contributing to the regional loss of habitat and fragmentation. Reduced habitat connectivity associated with the buildout of roadways and infrastructure could force kit foxes to use different areas for movement; that could result in greater exposure to potential predators and risk of collisions with vehicles.

The project could indirectly impact the remaining habitat next to the proposed impact area through construction or operation of the project. During construction, noise or vibration could affect burrowing animals or nesting raptors. Runoff from the construction site or operational roadway could impact water quality next to the project site, which would degrade habitat quality. Night lighting during construction or operation of the project could interfere with typical foraging or predation of nocturnal species in adjacent open space areas, increasing the potential for some wildlife to avoid these areas.

Measures—including, but not limited to, pre-construction biological surveys, biological monitors, avoidance and minimization measures, best management practices, construction contract standard provisions, contract non-standard provisions, environmental awareness training, and habitat compensation—would be implemented to mitigate for potential effects to federally and state listed species.

To avoid or offset potential project effects to biological resources, the following avoidance, minimization, and/or mitigation measures will be implemented before project construction. Measures are summarized below; the full measures can be found in Section 4.

- Prior to initiation of construction, Caltrans shall coordinate with and obtain necessary permits from the U.S. Army Corps of Engineers, California Department of Fish and Wildlife, and Regional Water Quality Control Board regarding compensation for impact to jurisdictional habitat. The mitigation approach will be negotiated with the resource agencies and will consist of one or a combination of the following: 1) purchase of credits at a jurisdictional waters mitigation bank; 2) enhancement of jurisdictional waters; 3) restoration of jurisdictional waters; or 4) purchase of existing jurisdictional waters and placing a conservation easement over it.

- Pre-construction focused surveys for California jewelflower (*Caulanthus californicus*), Kern mallow, San Joaquin woollythreads (*Monolopia congdonii* [*Lembertia c.*]), and Bakersfield cactus shall be conducted by a qualified biologist (one approved by the U.S. Fish and Wildlife Service) within the project impact area before ground-disturbing activities. The surveys shall be done during these species' blooming periods in accordance with the most current protocols approved by the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife. If the species is present within the impact area of the project, the impact would be considered potentially substantial depending on the number of individuals impacted. To the greatest extent practicable, efforts shall be made to avoid the species during project design. If avoidance is not feasible, seed shall be collected from this species before construction; seed will be used in habitat restoration.

If one of these federally or state listed plant species is observed within the impact area and it cannot be avoided, Caltrans shall obtain take authorization to impact the species from the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife before impacts to the species occur. Caltrans shall consult with the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife to determine the appropriate conservation measures to mitigate for impacts on the species. Mitigation shall include payment to an in-lieu fee program; preservation or enhancement of occupied habitat for this species; or collection of seed within the impact area and planting within a mitigation site with the appropriate microhabitat for the species. A detailed mitigation and monitoring program shall be prepared by a qualified biologist and approved by the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife.

- The potential loss of San Joaquin kit fox habitat resulting from implementation of the project shall be mitigated at a no-net-loss ratio. Compensatory mitigation for habitat loss associated with the proposed project shall include payment of mitigation fees to the Metropolitan Bakersfield Habitat Conservation Plan Trust Group to compensate for kit fox habitat affected by the project based on the alternative selected. For permanent and temporary impacts to non-native grassland, waterways, disturbed/ruderal, and detention basin, the project shall implement a mitigation ratio of 3:1 for permanent impacts to these habitat types and a mitigation ratio of 1.1:1 for temporary impacts to these habitat types. Before construction, the limits of

permanent and temporary impacts shall be verified and mapped by habitat type within those limits. The map shall be submitted for approval by the U.S. Fish and Wildlife Service before submittal to the City of Bakersfield Planning Department for fee payment.

- Road design modifications that would facilitate safe passage of kit fox and reduce vehicular-mortalities are proposed and shall be evaluated for feasibility during final project design.
- Avoidance and minimization measures for the San Joaquin kit fox have been developed in consultation with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife. These measures are part of a larger Sump Habitat Program developed to address the Thomas Roads Improvement Program. The measures identified for the Centennial Corridor project include those listed below:
 - Construction activities shall adhere to the standard construction and operational requirements as described in the U.S. Fish and Wildlife Service *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (U.S. Fish and Wildlife Service 2011b) and the biological opinion (08ESMF00-2013-F-0373).
 - No less than 30 days but no more than 60 days before road construction, a U.S. Fish and Wildlife Service-approved qualified biologist shall conduct a survey for kit fox dens within the project footprint and within 200 feet of the construction footprint, including utility relocations. A letter report and map of known and potential kit fox dens shall be submitted to the U.S. Fish and Wildlife Service prior to the start of ground-disturbance and/or construction activities. Repeat clearance surveys for kit fox shall be conducted no more than 14 days before construction or after any delays in construction that last more than two weeks. Any new kit fox dens identified since completing the 60-day survey shall be reported to the U.S. Fish and Wildlife Service in a letter report and map. If no new kit fox dens are identified, an internal record shall be maintained that includes the survey date, designated biologist conducting the survey, and general survey findings. The records shall be submitted to the U.S. Fish and Wildlife Service on request.

- Disturbance to all San Joaquin kit fox dens shall be avoided to the maximum extent practicable. If known dens or potential dens are detected within the project footprint during 60-day and/or 14-day pre-construction clearance surveys, Caltrans shall request agency permission to monitor and excavate dens that would be affected directly by the project and cannot be avoided; active dens shall not be excavated during the natal season (January 1–June 30). The U.S. Fish and Wildlife Service-approved biologist shall monitor potential dens for three consecutive nights using tracking medium and/or remote sensor camera and shall submit monitoring results in a letter report to the U.S. Fish and Wildlife Service. The biologist shall oversee the hand excavation of dens that have been determined to be vacant following approval by the U.S. Fish and Wildlife Service; results of the den excavation and exclusion activities shall be reported to the U.S. Fish and Wildlife Service in a letter report. Dens found within 200 feet of project construction but not directly affected by construction activities shall be monitored and buffered from construction by an exclusion zone around dens as measured outward from, the entrance or cluster of entrances of each den. The biologist shall place flagged stakes in a 50-foot-radius buffer around any potential or atypical den. The biologist shall place a fence (e.g., wooden posts connected with caution tape, orange construction cones, orange construction fencing with a mesh size less than 2 inches in diameter [to prevent kit fox from becoming entangled in the fencing] with gaps every 50 feet, or other fencing approved by the U.S. Fish and Wildlife Service as long as it has openings for kit fox entry/exit and keeps humans and equipment out) 100 feet from a known den. Fencing/flagging will be maintained until all construction-related disturbances have been terminated. At that time, all fencing/flagging shall be removed to avoid attracting subsequent attention to the dens. Caltrans shall immediately notify the U.S. Fish and Wildlife Service if a natal den is found, either within the project footprint or within 200 feet of the project footprint. The biologist shall submit results of den excavation and exclusion in a letter report to the U.S. Fish and Wildlife Service.
- The U.S. Fish and Wildlife Service-approved biologist shall conduct a worker environmental awareness program for all construction crews before ground-disturbing activities. The purpose of this training is to inform construction crew members of permit terms and conditions and the

potential for kit fox to occur and be affected by construction activities, how to minimize effects on the species, and the penalties for non-exempted take. The training shall include, at a minimum: special-status species identification and a description of suitable habitat for the species; avoidance of environmentally sensitive areas; and measures to implement in the event that this species is found during construction. The training shall be repeated to all new crew members working in kit fox habitat. Following the training, crew members shall sign an attendance sheet stating that they attended the training and understand the protective measures and construction restrictions. Training materials and records of attendees shall be submitted to the U.S. Fish and Wildlife Service.

- The U.S. Fish and Wildlife Service-approved biologist shall monitor road construction activities on a daily basis. The biologist shall verify that construction complies with measures in the biological opinion 08ESMFOO-2013-F-0373 (USFWS 2013). The biologist shall maintain a log of daily monitoring notes that can be summarized and transmitted to the U.S. Fish and Wildlife Service at the Service's request.
- In areas of known kit fox activity, the project right-of-way shall be fenced with permeable fencing. In high-density residential areas, the project right-of-way shall be fenced with permanent exclusionary fencing. For a permeable fencing design, one or a combination of the following three design options may be adopted to provide kit fox with movement opportunities: (1) elevating the bottom of the fence 5 inches above ground to allow unobstructed movement by kit foxes under the fence; (2) installing ground-level 8-by-8-inch-wide gaps no more than 100 feet apart for the length of the fence, which would allow kit fox movement at regular intervals along the right-of-way; and (3) installing fencing with a minimum mesh size of 3½ by 7 inches, preferably 5 by 12 inches, which would allow unlimited movement by kit fox through the fence.
- Curbed medians and median barriers shall be used as part of the project design and their height shall be no greater than 10 inches. In areas of known kit fox activity, either 6-inch-high curbed medians with low vegetation (less than 6 inches) or 10-inch-high unvegetated curbed medians shall be used. Ten-inch curbed medians shall remain unvegetated to prevent obstructing the visual field of kit foxes near the roadway. Curbed medians less than 10 inches in height and requiring landscaping

shall be planted with low-level vegetation (less than 6 inches tall at maturity or mowed frequently) to prevent overgrowth and provide an unobstructed line of sight for the species, or shall have gaps installed measuring no less than 4 feet wide every 12 feet in areas landscaped with trees and shrubs. If required, landscaping shall be designed in conjunction with the curbed median design in order to allow unobstructed visibility to the San Joaquin kit fox and to maintain and/or enhance opportunities for movement across the roadway.

- Median barriers are required in some portions of the project for public safety. In areas of known kit fox activity, Caltrans-designed modified median barrier type 60/S shall be used. The Caltrans type 60/S design has been approved by the U.S. Fish and Wildlife Service (Biological Opinion #81420-2009-F-0752) and includes 9-inch-radius openings (9-inch-high by 18-inch-wide half-circle openings) spaced every 150 feet to allow for kit fox passage. In areas of known kit fox activity and higher traffic speed/volume, exclusionary fencing shall be used and these modifications will not be necessary in those areas.
- In areas of known kit fox activity and high traffic volumes and/or speed, existing kit fox movement corridors such as canals, the Kern River, and railroads shall be preserved through the use of bridges and/or culverts for wildlife crossing. Some segments of the canals under the new roadway will be converted from trapezoidal channels to box culverts; other segments of the canals with existing box culverts will be extended. The toe-of-road fill and bridge support walls shall be maintained and new walls designed, no less than 20 feet from the centerline of canal access roads and the centerline of railroads.
 - An elevated bridge currently exists at the location where the Westside Parkway crosses the trapezoidal channel of the Friant-Kern Canal. Species access shall continue to be provided along an elevated access road located parallel to the canal.
 - An above-ground bridge shall be constructed over the trapezoidal channel of the Stine Canal. This will allow the species to move freely below the roadway.
 - An above-grade bridge (westbound Mohawk Street off-ramp) shall be constructed over the Cross Valley Canal, which exists as a double box culvert. The Kern River Corridor is located near the

canal so it provides existing access for the species in the area; no additional crossing features are proposed at this canal site.

- Two design options are proposed for the location where the new roadway will cross the Carrier Canal. If a box culvert is chosen, a crossing structure (with proposed 5 X 5 inch mesh size and 10 inch diameter escape pipes within a 60 inch diameter crossing culvert) shall be installed to connect the access roads on the north side of the canal. If a bridge is chosen, no additional crossing feature would be necessary since the elevated bridge above the trapezoidal canal will allow the species to move freely below the roadway.
- Upon completion of project construction, all areas subject to temporary ground disturbance, including storage and staging areas, shall be restored to original grade and contour. Revegetation experts shall determine the appropriate methods and plant species used to revegetate these areas on a site-specific basis.
- To minimize opportunistic predatory effects to the San Joaquin kit fox, the City and Caltrans shall condition contracts with contractors to require that trash be removed at least once daily from project areas and disposed of offsite so as not to attract predator species like coyotes and bobcats to the project area.
- The City and Caltrans shall condition contracts with contractors to require contained water sources, which are inaccessible to San Joaquin kit fox (e.g., elevated water trucks), to be used for dust control and other construction water activities.
- The U.S. Fish and Wildlife Service-approved biologist shall meet weekly with the resident engineer and contractor to review the week's upcoming ground-disturbing activities, including any possible changes from the project as analyzed in the biological opinion and the avoidance and minimization measures. These meetings shall be documented and reported to Caltrans every two weeks, Caltrans will in turn report to the U.S. Fish and Wildlife Service every two weeks. Should the incidental take exceed the amount agreed upon in the Biological Opinion, Caltrans must immediately reinitiate formal consultation.
- If incidental take in the form of harassment, harm, injury, or death is likely, Caltrans shall immediately contact the U.S. Fish and Wildlife Service to

report the encounter. If an injured or dead individual of a listed species is found, Caltrans shall follow the steps outlined in the *Salvage and Disposition of Individuals* section of the Biological Opinion.

- A post-construction report detailing compliance with the project design criteria and proposed conservation measures shall be provided to the U.S. Fish and Wildlife Service within 60 calendar days of completion of the project. The report shall include: (1) dates of project groundbreaking and completion; (2) pertinent information concerning success of the project in meeting the conservation measures; (3) an explanation of failure to meet such measures, if any; (4) known project effects on San Joaquin kit fox, if any; (5) observed instances of injury to or mortality of the San Joaquin kit fox, if any; (6) the number of dens lost, if any; and (7) any other pertinent information. Any new sightings of the San Joaquin kit fox or its dens shall be reported to the California Natural Diversity Database.
- The project shall mitigate for the cumulative effects of the Thomas Roads Improvement Program road improvement projects by implementing the Sump Habitat Program, which is intended to provide long-term habitat conservation for the urban kit fox population. The conservation goals of the program shall be achieved by installing artificial dens in selected sumps, enhancing kit fox habitat by controlling vegetation in and around dens, increasing kit fox accessibility to sumps through fence/gate gaps, and reducing the potential for impacts to kit foxes associated with regular maintenance activities. The Sump Habitat Program should include any new detention basins within or adjacent to areas of known kit fox activity created by the selected alternative, as well as existing sumps currently under discussion. The program is currently being developed with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife and shall continue to be refined through an ongoing, collaborative consultation process among Caltrans, the City, the U.S. Fish and Wildlife Service, and the California Department of Fish and Wildlife.
- Caltrans shall install modified k-rail barriers that facilitate San Joaquin kit fox movement and passage across the roadways. Openings in the barriers shall be spaced every seven segments of k-rail; segments are 20-feet long, so intervals shall be spaced approximately every 140-feet. One, or a combination, of two design options shall be implemented. Designs include:

- A Modified Type K segment with one 8-inch diameter hole cast or bored into a typical rail segment.
- A Type L passageway that off-sets a segment of k-rail via a gap measuring between 8-inches and 5-feet.

Caltrans acknowledges that the aforementioned designs are only temporary solutions for addressing the issues of roadway permeability and wildlife passage; over the long-term, Caltrans will commit to conducting crash-test and safety studies on alternative design options in order to provide the most effective solutions for addressing San Joaquin kit fox movement across the roadscape.

- A pre-construction burrowing owl survey shall be conducted by a qualified biologist in accordance with the survey requirements detailed in the California Department of Fish and Game's October 17, 1995 *Staff Report on Burrowing Owl* no more than 30 days before initial ground-disturbing activity (CBOC 1993). Any active burrow found during pre-construction survey efforts shall be mapped and provided to the construction foreman and the following measures shall be used:
 - No disturbance shall occur within 160 feet of occupied burrows during the non-breeding season (September 1 through January 31) or within 250 feet during the breeding season (February 1 through August 31).
 - If owls must be moved away from the disturbance area, passive relocation is preferable to trapping. Relocation shall be implemented only during the non-breeding season by a qualified biologist and shall occur in coordination with the California Department of Fish and Wildlife. Owls shall be excluded from burrows in the immediate impact zone through installation of one-way doors in burrow entrances. One-way doors shall be left in place for 48 hours to ensure owls have left the burrow before excavation.
 - An effort shall be made to preserve foraging habitat contiguous with occupied burrow sites for each pair of breeding burrowing owls or single unpaired resident bird.
 - Compensatory mitigation for the San Joaquin kit fox shall also mitigate for the loss of burrowing owl habitat. Additional compensatory mitigation for burrowing owls shall be required only if burrowing owls found within 250 feet of construction activities during pre-construction surveys cannot be avoided during construction. In this event, potential compensatory mitigation

may include purchase of suitable habitat through the payment of fees to the Metropolitan Bakersfield Habitat Conservation Plan Trust Group for this species or construction of artificial burrows in City sumps similar to the Kit Fox Habitat Program.

- Tree removal within 500 feet of non-native grassland, agricultural land, and detention basins shall occur outside the Swainson's hawk breeding season, which occurs between February 1 and August 31. If construction starts during the Swainson's hawk nesting season, a pre-construction survey for Swainson's hawk nests shall be conducted before construction activities. A qualified biologist shall survey within the limits of the biological study area and within a 0.5-mile radius around the biological study area for the presence of an active nest in accordance with the Swainson's Hawk Technical Advisory Committee's 2000 *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California, Central Valley*. Any active nest found during survey efforts shall be mapped and provided to the construction foreman. If Swainson's hawks are nesting within 0.5 mile of the proposed impact area, the California Department of Fish and Wildlife shall be consulted to evaluate the potential for disturbance of the nesting birds during construction and to approve measures that would avoid impacts on the active nest; authorization to proceed shall be obtained before work starts. The active site shall be protected until nesting activity has ended to ensure compliance with the California Endangered Species Act and Section 3503.5 of the *California Fish and Game Code*.
- A pre-construction survey for nesting raptors shall be conducted by a qualified biologist within the limits of project disturbance. Any active nest found during survey efforts shall be mapped and the locations provided to the construction foreman. If nesting activity is present, the active site shall be protected until nesting activity has ended to ensure compliance with Section 3503.5 of the *California Fish and Game Code*. Nesting activity for raptors in the region normally occurs from February 1 to August 31.
- To avoid impacts to nesting birds such as the loggerhead shrike and tricolored blackbird, vegetation clearing within the project footprint shall be done outside the nesting season from September 1 to January 31. If vegetation clearing were to occur during the nesting season (February 1 to August 31), a qualified biologist shall conduct pre-construction surveys within the biological study area to identify any nesting locations. If the biologist does not find any

- active nests within the impact area, the vegetation clearing/construction work shall be allowed to proceed. If the biologist finds an active nest within the construction area and determines that the nest may be impacted and breeding activities substantially disrupted by construction, the biologist shall delineate an appropriate buffer zone around the nest to protect it from construction activities.
- If the tricolored blackbird is observed nesting within the impact area, Caltrans shall obtain a take authorization from the California Department of Fish and Wildlife before impacts to this species. Caltrans shall consult with the California Department of Fish and Wildlife to determine the appropriate conservation measures to mitigate for impacts on this species. The mitigation shall include payment to an in-lieu fee program; preservation or enhancement of occupied habitat for this species; or creation of a mitigation site with the appropriate habitat for this species. A detailed mitigation and monitoring program shall be prepared by a qualified biologist and approved by the California Department of Fish and Wildlife.
 - Before construction, a focused survey for the western spadefoot, western pond turtle, coast horned lizard, and silvery legless lizard shall be conducted by a qualified biologist. If any of these species are observed on or adjacent to the project site and are in imminent danger from construction activities, a qualified biologist shall capture and relocate the animals to appropriate habitat at a safe distance from the construction site. The biologist conducting the surveys shall hold necessary permits to handle the species. If animals are not in imminent danger, they shall be allowed to leave the impact area on their own.
 - Night work shall be minimized or avoided. Permanent night lighting shall be directed away from open space areas. Lighting plans for permanent light fixtures shall be submitted for review by Caltrans and the City of Bakersfield during the project design phase to ensure that lighting has been reduced to the extent practicable.
 - In compliance with the Executive Order on Invasive Species, Executive Order 13112, and subsequent guidance from the Federal Highway Administration, the landscaping and erosion control included in the project shall not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions shall be taken if invasive species (species listed in the California List of Noxious Weeds) are found in or adjacent to the construction areas by

the monitoring biologist. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur. All fill material shall be screened for noxious weeds and shall be free of seed material.

Any landscape designs shall be submitted to Caltrans for review and approval by a qualified biologist during the project design phase. The review shall verify that no noxious weeds/invasive exotic plant species are used in any proposed landscaping. The reviewing biologist shall recommend suitable substitutes.

Beneficial Impacts

The Centennial Corridor project would change accessibility and mobility within the metropolitan Bakersfield area and, as part of the larger multi-project Thomas Roads Improvement Program, could potentially contribute to improved accessibility to and from the Los Angeles metropolitan area. By reducing traffic bottlenecks and current stop-and-go vehicular traffic, the build alternatives would facilitate the flow of traffic, leading to time savings for the traveler. The project would have the effect of providing a better connection from urbanized areas of Bakersfield near downtown to the suburban fringe and areas beyond by means of a major new multi-lane, limited access highway. In the long term, the project would improve the operational efficiency of State Route 58, and it would relieve traffic congestion from area roadways, which would have a positive effect on residents living nearby. The impact from project implementation would be beneficial on a cumulative basis.

Certain economic benefits would come with implementation of any of the build alternatives. Economic improvements are measured incrementally, in part by time savings on freight transport services and less roadway congestion and traffic delay, potentially saving drivers travel time, fuel, auto repair, and maintenance; and reduction in property damage and lower medical costs attributable to fewer vehicle crashes. Accident costs benefits were also quantified. Removing traffic, including trucks, from local streets would result in fewer potential vehicular hazards to bicyclists and pedestrians.

Permits and Agreements

The biological study area is located within the Metropolitan Bakersfield Habitat Conservation Plan. Per the Metropolitan Bakersfield Habitat Conservation Plan, payment of a one-time mitigation fee for each undeveloped acre impacted by the project would mitigate for all species covered by the plan. The Metropolitan

Bakersfield Habitat Conservation Plan expired in 2014; however, the payment of mitigation fees was agreed upon before this date. Caltrans is not a signatory to the plan; therefore, a Section 7 consultation with the U.S. Fish and Wildlife Service occurred to obtain a U.S. Fish and Wildlife Service Biological Opinion. Caltrans consulted with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife to address program-wide impacts as a result of the Thomas Roads Improvement Program, which includes the project.

Before impacting jurisdictional resources, a U.S. Army Corps of Engineers Section 404 permit, a California Department of Fish and Wildlife Streambed Alteration Agreement, and a Regional Water Quality Control Board Section 401 Water Quality Certification shall be obtained. A Jurisdictional Mitigation Plan shall be prepared and approved by the resource agencies to mitigate for impacts on these resources.

Invasive Species

The biological study area was evaluated for the presence of invasive species based on the California Department of Food and Agriculture Noxious Weed List (CDFA 2010), the California Invasive Plant Council List (California Invasive Plant Council 2006), and the U.S. Department of Agriculture Natural Resource Conservation Service Federal Weed List (2010). One listed noxious weed species from the California Department of Food and Agriculture list and five listed invasive weed species from the California Invasive Plant Council List (2006) were identified in the biological study area: wild turnip (*Brassica toumefortii*), foxtail chess (*Bromus madritensis* ssp. *rubens*), cheat grass (*Bromus tectorum*), halogeton (*Halogeton glomeratus*), English ivy (*Hedera helix*), and Mediterranean tamarisk (*Tamrix ramosissima*). No species on the federal weed list (2010) were identified in the biological study area.

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List of Abbreviated Terms

| | |
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| A | Habitat Absent |
| Alt. | Alternative |
| a.m. | Before noon (literally, “ante meridiem”) |
| Bakersfield PWD | Bakersfield Public Works Department |
| BO | Biological Opinion |
| Caltrans | California Department of Transportation |
| CBOC | California Burrowing Owl Consortium |
| CDFA | California Department of Food and Agriculture |
| CDFG | California Department of Fish and Game |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CNPS | California Native Plant Society |
| e.g. | For example (literally, “exempli gratia”) |
| EIR/EIS | Environmental Impact Report/Environmental Impact Statement |
| ESRP | Endangered Species Recovery Program |
| et al. | “and others” |
| et seq. | and the following |
| FE | Federally listed Endangered species |
| FESA | Federal Endangered Species Act |
| FHWA | Federal Highway Administration |
| FP | California Fully Protected species |
| FT | Federally listed Threatened species |
| GPA | General Plan Amendment |
| GPS | Global Positioning System |
| HP | Habitat Present/Species Presence Unknown |
| HP/A | Habitat Present/Species Absent |
| HP/P | Habitat Present/Species Present |
| ID# | Identification number |
| i.e., | That is (literally “id est”) |
| KWBA | Kern Water Bank Authority |
| MBHCP | Metropolitan Bakersfield Habitat Conservation Plan |
| N/A | Not applicable |
| NEPA | National Environmental Policy Act |
| NES | Natural Environment Study |

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| | |
|-----------|--|
| NPDES | National Pollutant Discharge Elimination System |
| Perm | Permanent |
| p.m. | After noon (literally, “post meridiem”) |
| PM | Postmile |
| P.R.C. | California Public Resources Code |
| RWQCB | Regional Water Quality Control Board |
| SE | State-listed Endangered species |
| sp. | Unidentified at the species level (referring to one species) |
| spp. | Unidentified at the species level (referring to more than one species) |
| SSC | California Species of Special Concern |
| ssp. | Subspecies |
| ST | State-listed Threatened species |
| TAC | Technical Advisory Committee |
| Temp | Temporary |
| TRS | California Relay Services |
| TTDD | Telecommunication Devices for the Deaf |
| TTY | Telephone system through a text phone |
| USACE | U.S. Army Corps of Engineers |
| U.S. | United States |
| U.S. Code | United States Code |
| USFWS | U.S. Fish and Wildlife Service |
| ZC | Zone change |

Chapter 1. Introduction

The following section provides an overview of the Centennial Corridor project (hereafter referred to as “the project”), including the purpose and need, project description, and construction schedule.

The California Department of Transportation (Caltrans) proposes to establish a new alignment for State Route 58, which would provide a continuous route along State Route 58 from Cottonwood Road (post mile R55.6) on existing State Route 58, east of State Route 99 (post mile R55.6), to Interstate 5 (post mile T31.7). Improvements to State Route 99 (post miles 21.2 to 26.2) and Westside Parkway would also be made to accommodate the connection with State Route 58.

The project is located at the southern end of the San Joaquin Valley in the city of Bakersfield in Kern County, California. The study site is bound on the east by Cottonwood Road, on the west by Interstate 5, on the north by Gilmore Avenue, and on the south by Wilson Road. Caltrans is the lead agency for the project pursuant to the California Environmental Quality Act and the National Environmental Policy Act.

The proposed continuous route, known as the Centennial Corridor, has been divided into three segments, as shown in Figure 1.

Segment 1 is the easternmost segment, which would connect the existing State Route 58 (East) freeway to the Westside Parkway. Multiple alignment alternatives are being evaluated for this segment and are discussed below.

Segment 2 is composed of the Westside Parkway, which extends westerly from Truxtun Avenue to Heath Road. This roadway is a local facility that would be transferred into the State Highway System. The analysis evaluates potential impacts associated with incorporating the Westside Parkway as part of the State Highway System, as well as improvements to the Westside Parkway from Truxtun Avenue to the Calloway Drive interchange which would be made to facilitate traffic operations between the Westside Parkway and the Centennial Corridor. The analysis reports the relevant results of the *Westside Parkway Environmental Assessment/Final Environmental Impact Report* and provides updates, as necessary.

Segment 3 would extend from Heath Road to Interstate 5. This segment will need a temporary route adoption for the use of Stockdale Highway between Heath Road and I-5 as an interim alignment for State Route 58. A future new alignment (ultimate) as

identified in the 2002 *Route 58 Route Adoption Project Tier I Environmental Impact Statement/Environmental Impact Report* (EIS/EIR) will be constructed when there is greater traffic demand and funding is available. Since traffic would use Stockdale Highway between Heath Road and Interstate 5 on an interim basis, the potential impacts will also be evaluated for the interim use of Stockdale Highway. Improvements to the Stockdale Highway/State Route 43 (known locally as Enos Lane) intersection would be made to accommodate the additional traffic.

This Natural Environment Study focuses on Segment 1. Segments 2 and 3 are discussed in Appendices A and B, respectively.

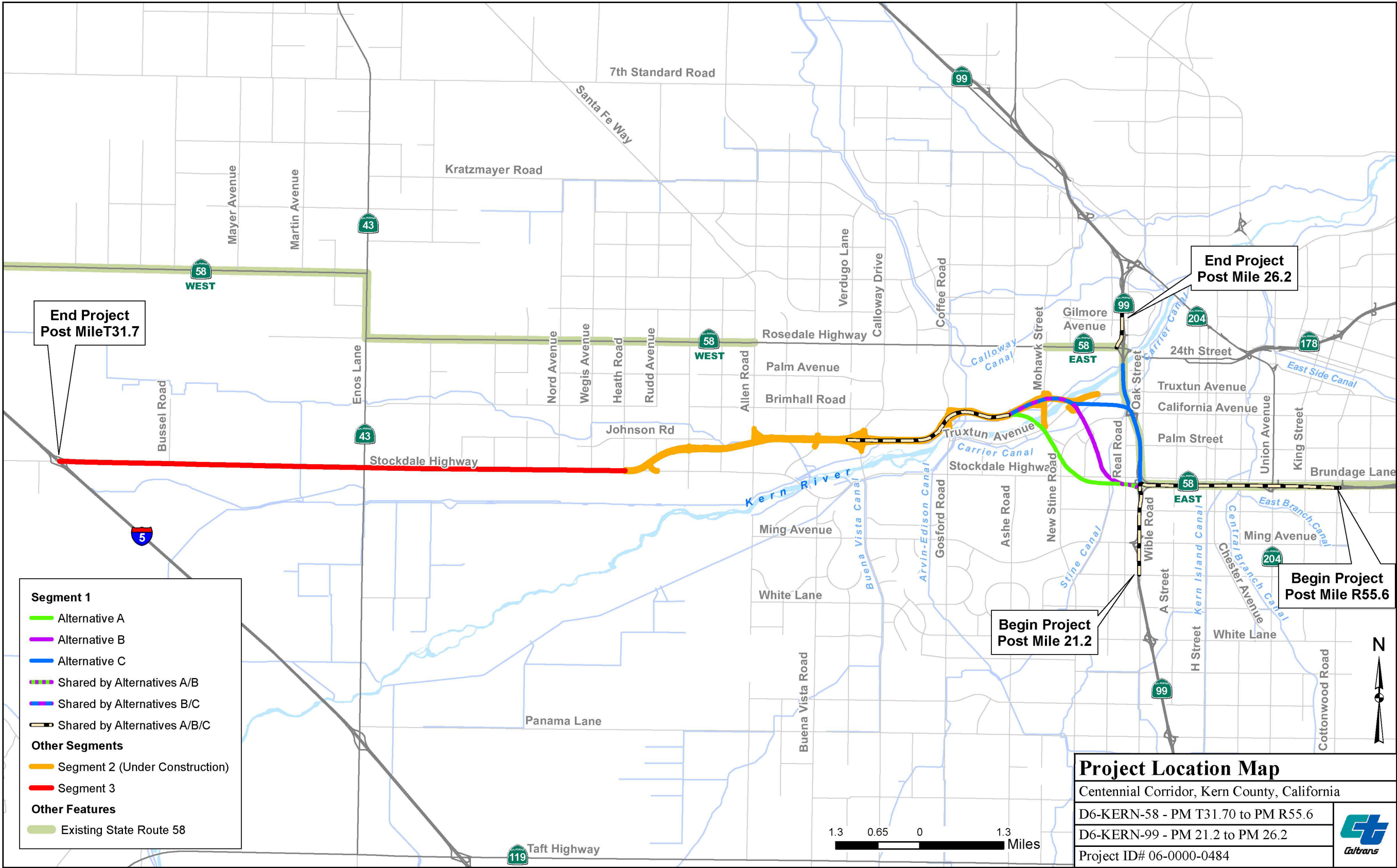


Figure 1

1.1. Project History

1.1.1. Project Purpose

The purpose of the Centennial Corridor project is to provide route continuity and associated traffic congestion relief along State Route 58 within Metropolitan Bakersfield and Kern County from State Route 58 east (at Cottonwood Road) to Interstate 5.

1.1.2. Project Need

State Route 58 is a critical link in the state transportation network that is used by interstate travelers, commuters, and a large number of trucks. Under existing conditions, State Route 58 does not meet the capacity needs of the area, and this is expected to get worse as the population grows. State Route 58 lacks continuity in central Bakersfield, which results in severe traffic congestion and reduced levels of service on adjoining highways and local streets. This route is offset by about 1 mile at State Route 43 and by about 2 miles at State Route 99. The merging of two major state routes (58 and 99) into one alignment between the eastern and western legs of State Route 58 degrades the traffic level of service on this segment of freeway. In addition, State Route 99's close spacing for its two interchanges with State Route 58 (East and West), in addition to an interchange at California Avenue, results in vehicles aggressively changing lanes, which adds to the congestion.

1.2. Project Description

The project alternatives for Segment 1 include three build alternatives and a No-Build Alternative.

Alternatives

The Centennial Corridor project is divided into three segments (Figure 2). Segment 1 alternatives are bound on the east by Cottonwood Road, on the west by Calloway Drive, on the north by Gilmore Avenue, and on the south by Wilson Road.

Construction of Segment 1 is proposed to begin in 2016 and be completed in 2018.

Three build alternatives—Alternatives A, B, and C—and a No-Build Alternative are being considered for Segment 1 of the project. Selection of a preferred alternative will be based on how well each project alternative is able to meet the project purpose and need, address impacts to the community and environment, and be cost-effective.

No alternative alignments are proposed for Segment 2 because the project would use the Westside Parkway. Only minor changes to Segment 2 are required and these would be done within the existing right-of-way.

Stockdale Highway would be used as the State Route 58 connection to Interstate 5. The existing Stockdale Highway and interchange at Interstate 5 would satisfy travel demand through the planning horizon of 2038. However, to accommodate the additional traffic volumes, intersection improvements at Stockdale Highway and State Route 43 are being proposed.

Build Alternatives

The actions for Centennial Corridor project would be (1) route adoption for a continuous route for State Route 58 from the existing freeway portion of State Route 58 east of State Route 99 to Interstate 5 with the western portion on existing Stockdale Highway from Heath Road to Interstate 5; and (2) approval for construction of Segment 1, improvements within Segment 2, and intersection improvements at the Stockdale Highway and State Route 43 (known locally as Enos Lane) intersection. Common and unique design features of each build alternative are described below.

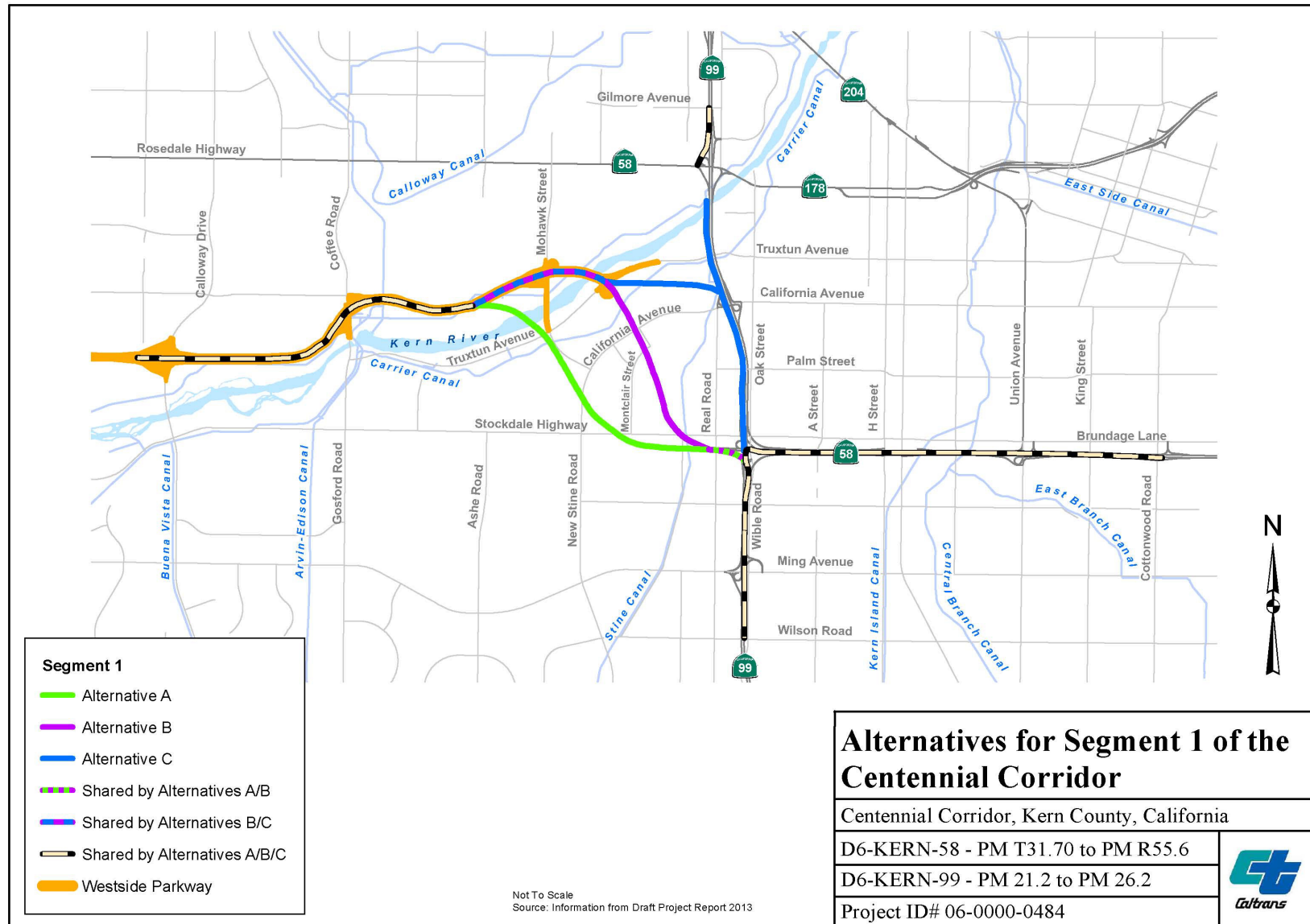


Figure 2

Common Design Features of the Build Alternatives

The build alternatives propose to connect State Route 58 (East) to the east end of the Westside Parkway by means of a six-lane freeway. Though the alignment and design characteristics vary by alternative, there are common design features to each of the three build alternatives, as noted below.

Segment 1

All three build alternatives would provide the following connections between existing State Route 58 (East) and State Route 99 using high-speed connection ramps:

Northbound State Route 99 to westbound Centennial Corridor

Northbound State Route 99 to eastbound State Route 58 (East)

Southbound State Route 99 to eastbound State Route 58 (East)

Eastbound Centennial Corridor to southbound State Route 99

Westbound State Route 58 (East) to southbound and northbound State Route 99

Build alternatives A, B, and C would not include direct connectors from southbound State Route 99 to westbound State Route 58 and from eastbound State Route 58 to northbound State Route 99. The traffic demand forecast for 2038 (the planning horizon year) identifies that the direct connectors would primarily service regional traffic while interregional traffic passing through the triangle area formed by State Route 99, Interstate 5 and State Route 58 would use shorter and more direct routes instead of the connectors. For example, the traffic from the south would directly access State Route 99 at the State Route 99/Interstate 5 Interchange located 24 miles south of State Route 58 East. Also, traffic going between Interstate 5 and State Route 99, north of Bakersfield, would continue to use State Route 46 (approximately 17 miles north of Stockdale Highway) due to more efficient travel times as compared to using the Westside Parkway and Centennial Corridor.

In addition, the traffic modeling for Alternatives A and B, projects that traffic traveling on southbound State Route 99 to westbound State Route 58, would opt for the shorter 2-mile alternate route, by exiting at Rosedale Highway, traveling west to Mohawk Street and then going south on Mohawk Street to join the Westside Parkway, versus traveling 4.5 miles on State Route 58 and State Route 99. Traffic traveling east on the Westside Parkway would use the same route in the reverse direction.

The cost for the Alternative A and B future connectors is estimated at \$183 million, and the cost for the Alternative C future connectors is estimated at \$240 million. The project would not preclude the construction of the connectors in the future when it is demonstrated that the traffic volumes would justify the cost.

The project proposes to rebuild the southbound State Route 99 Rosedale Highway off-ramp from an existing one-lane off-ramp with two lanes at the ramp end to a two-lane off-ramp with four lanes at the end, including an auxiliary lane, which begins south of Gilmore Avenue. A separate project (the Rosedale Highway Widening Project), scheduled to open in 2016, would widen Rosedale Highway from four lanes to six lanes, provide two left-turn lanes from westbound Rosedale Highway to southbound Mohawk Street, and two right-turn lanes from northbound Mohawk Street to eastbound Rosedale Highway.

Changes to existing roadways common to all three build alternatives include widening the South P Street undercrossing and the westbound State Route 58 (East)/State Route 99 grade separation, and removing from State Route 99 the southbound Stockdale Highway off-ramp and the Wible Road on- and off-ramps.

Locations of auxiliary lanes vary by alternative and are discussed later in the Unique Features of the Build Alternatives section.

All the build alternatives provide sufficient right-of-way in the median for future high occupancy vehicle lanes (not proposed as part of the Centennial Corridor project), as demand warrants.

Other Common Design Features of Segment 1

Park and Ride Facilities

The Park and Ride facility west of State Route 99 and south of Stockdale Highway (at the intersection of Stockdale Highway and Nello Street) would be displaced by the proposed changes to the southbound connector to State Route 99 from westbound State Route 58. A new facility would be constructed to replace the lost park and ride lot. The design of the new facility will be determined during the final design phase of the project. This existing lot currently provides 49 parking spaces and is generally about half utilized.

Alternative A

A replacement Park and Ride facility with about 50 parking spaces would be provided off Mohawk Street, between California Avenue and Truxtun Avenue using

residual property acquired for the project. This location would provide easy access to both eastbound and westbound State Route 58 via Mohawk Street and to State Route 99 via California Avenue.

Alternative B

A new Park and Ride facility with about 50 parking spaces would be provided north of California Avenue, next to the Centennial Corridor, using residual property acquired for the project. This location would provide easy access to eastbound and westbound State Route 58 at the Mohawk Street/Truxtun Avenue interchange and to State Route 99 via the California Avenue interchange.

Alternative C

A replacement Park and Ride facility with about 50 parking spaces would be provided at Real Road and Chester Lane using residual property acquired for the project. This location would provide easy access to State Route 99 at the California Avenue interchange and to the westbound State Route 58 via the Mohawk/Truxtun Avenue interchange.

Retaining Walls, Soundwalls and Landscaping

Aesthetic treatments for retaining walls and soundwalls would be consistent with the design used for the Westside Parkway. Landscaping would be implemented upon completion of construction.

Alternative A

Forty-seven retaining walls, ranging from 5 feet to 35 feet high, would be built at various locations along Alternative A to reduce right-of-way impacts. Based on the *Noise Abatement Decision Report* (May 2013), 19 soundwalls, ranging from 8 to 16 feet high, have been identified as reasonable and feasible for Alternative A.

Alternative B

Thirty-seven retaining walls, ranging from 3 feet to 45 feet high, would be built at various locations along Alternative B to reduce right-of-way impacts. Based on the *Noise Abatement Decision Report* (May 2013), 24 soundwalls, ranging from 8 to 16 feet high, have been identified as reasonable and feasible as well as one feasible but not reasonable recommended soundwall for Alternative B.

Soundwall surveys were sent to affected residents and benefitted receptors via registered mail and door-to-door canvassing to obtain input about whether the property owner and/or resident is opposed to the construction of the soundwall. Based

on the results of the soundwall surveys, all 24 proposed soundwalls indicated above will be constructed as part of the project. One soundwall is feasible but not reasonable; however, since this soundwall would close a gap in soundwalls, it is recommended.

Alternative C

Forty-six retaining walls, ranging from 2 feet to 45 feet high, would be built at various locations along Alternative C to reduce right-of-way impacts. Based on the *Noise Abatement Decision Report* (May 2013), 17 soundwalls, ranging from 10 to 16 feet high, have been identified as reasonable and feasible for Alternative C.

Infiltration Basins

Infiltration basins are proposed along the Centennial Corridor alignment to retain storm water runoff and improve water quality. In addition, existing basins along the alignment of State Route 58 and State Route 99 would need to be modified. The modification could include either deepening, resizing, or reshaping of the existing basins within their existing footprints.

Alternative A

Seven infiltration basins are proposed along the Alternative A alignment with two existing infiltration basins to be changed along the State Route 58 and 99 alignments.

Alternative B

Eight infiltration basins are proposed along the Alternative B alignment with six existing infiltration basins to be changed along the State Route 58 and 99 alignments.

Alternative C

Eleven infiltration basins are proposed along the Alternative C alignment with five existing infiltration basins to be changed along State Routes 58 and 99.

Right-of-Way Acquisition

Temporary construction easements would be needed from many properties sitting at the edge of the new right-of-way where retaining walls and soundwalls are proposed. Also, minor amounts of right-of-way would be required for the intersection improvements at Stockdale Highway and State Route 43.

Alternative A

Alternative A would fully acquire 295 properties and partially acquire 109 properties. Of these properties, 211 of the full acquisitions would be residential parcels and 18 of the partial acquisitions would be residential parcels.

Alternative B

Alternative B would fully acquire 293 properties and partially acquire 130 properties. Of these properties, 215 of the full acquisitions would be residential parcels and 34 of the partial acquisitions would be residential parcels.

Alternative C

Alternative C would fully acquire 254 properties and partially acquire 86 properties. Of these properties, 98 of the full acquisitions would be residential parcels and 9 of the partial acquisitions would be residential parcels.

Utilities and Electrical

A number of utility lines, such as water lines, sewer lines, telecommunication lines, electrical lines/poles, including relocation of high-voltage electrical towers, natural gas lines, streetlights, fire hydrants, cable television lines, utility boxes, and oil wells would need to be abandoned, removed, relocated, or replaced as part of project construction. Lighting would be consistent with Caltrans standards and would be installed at interchanges and bridges.

Bicycles and Pedestrians

Pedestrian and bicycle crossings would be limited to the proposed undercrossings and overcrossings. During the circulation of the Draft Environmental Document, a number of members of the public requested that bicycle connection enhancements be included as part of the project. The Project Development Team has decided to construct a bridge to span over the Carrier Canal as part of the Preferred Alternative B to accommodate bicycle traffic within the general area of Easton Drive. This bridge would provide an enhanced bicycle connection by providing a crossing across the Carrier Canal, which acts as a barrier to non-motorized transportation.

Unique Design Features of the Build Alternatives (Segment 1)

Alternative A

With Alternative A, State Route 58 (Centennial Corridor) would run parallel to Stockdale Highway for about half a mile west of the State Route 58 (East)/State Route 99 Interchange. It would then go northwesterly and follow an above-grade alignment over Montclair Street, Stockdale Highway, California Avenue/Lennox Avenue, Truxtun Avenue, and the Kern River before joining the east end of the Westside Parkway west of the Mohawk Street interchange. Alternative A would provide a separate crossing of the Kern River.

Alternative A would require changes to State Route 99. State Route 58 would not intersect with Real Road, instead an undercrossing would be provided. This alternative proposes a number of structures, auxiliary lanes and permanently closed or realigned local streets.

Alternative B

With Alternative B, State Route 58 (Centennial Corridor) would run parallel to Stockdale Highway for about 1,200 feet west of the State Route 58 (East)/State Route 99 interchange; there, it would go northwesterly and proceed as an above-grade alignment, crossing over Stockdale Highway/Stine Road. Between Ford Avenue and California Avenue, the alignment would be depressed with overcrossings proposed at Marella Way and La Mirada Drive to help with local traffic circulation. The option of removing the La Mirada Drive overcrossing from Alternative B is no longer being considered and has been proposed for construction. The option of adding a Ford Avenue undercrossing has also been proposed for construction with Alternative B. The roadway would then be elevated and have above-grade crossings at California Avenue, Commerce Drive, Truxtun Avenue, and the Kern River before joining the east end of the Westside Parkway, east of the Mohawk Street interchange. After the circulation of the Draft Environmental Document, Caltrans is considering constructing all of the proposed crossings, including maintaining the existing La Mirada Drive overcrossing. The final decision regarding the freeway overcrossing and undercrossing will be made during the final design phase of the project. Alternative B would incorporate a substantial amount of the improvements from the Westside Parkway in the area surrounding the Kern River.

Alternative B proposes the same connections to State Route 99 as Alternative A and would require similar improvements on State Route 99 and the existing State Route 58 (East). This alternative proposes a number of structures, changes to existing structures, auxiliary lanes and permanently closed or realigned local streets.

During the circulation of the Draft Environmental Document, a number of members of the public requested that bicycle connection enhancements be included as part of the project. Caltrans has decided to construct a bridge to span over the Carrier Canal as part of the preferred Alternative B to accommodate bicycle traffic between Easton Drive and Commerce Drive. This local street connection provides access to the Kern River Parkway Bike Trail.

Alternative C

With Alternative C, State Route 58 (East) would turn north from the existing State Route 58 (East)/State Route 99 interchange, running parallel to and west of State Route 99 for about 1 mile. The freeway would then turn west and cross the BNSF Railway rail yard, Truxtun Avenue, and the Kern River. Undercrossings are proposed at Brundage Lane, Oak Street, State Route 99, Palm Avenue, Truxtun Avenue, and California Avenue. Alternative C would incorporate a substantial amount of the improvements from the Westside Parkway in the area surrounding the Kern River.

Alternative C proposes to make changes to existing State Route 58 (East) and State Route 99. This alternative proposes a number of structures, auxiliary lanes and permanently closed or realigned local streets.

Segment 2 (Westside Parkway)

The build alternatives would all connect to the Westside Parkway, which the final segment from Allen Road to Stockdale Highway near Heath Road is currently under construction. Impacts from constructing the Westside Parkway were evaluated in the *Westside Parkway Environmental Assessment/Final Environmental Impact Report* and subsequent revalidation reports prepared by Caltrans and the City of Bakersfield in July 2008 and July 2010.

In its entirety, the 7.3-mile **long** Westside Parkway alignment begins at Truxtun Avenue, about 1 mile west of State Route 99, and goes westward, crossing the Kern River near the existing BNSF Railway Bridge. About 0.25 to 0.50 mile to the north of the Kern River, the roadway then parallels the Kern River, to Allen Road. West of Allen Road, the alignment turns southwesterly and connects to Stockdale Highway at Heath Road.

The Westside Parkway would be incorporated into the State Highway System with each of the alternatives. Improvements to connect the Centennial Corridor to the Westside Parkway would extend from where each build alternative connects at the eastern end of the Westside Parkway toward the west, ending at the Calloway Drive interchange. The proposed improvements would widen the Westside Parkway by constructing one additional lane in the median to provide auxiliary lanes. In the westbound direction, the median widening would extend from east of the Friant-Kern Canal through the Calloway Drive interchange. The limits of the added lane in the eastbound direction would differ between each alternative as described in the unique design features of the build alternative section below. With each build alternative, changes to the westbound diamond off-ramp to Calloway Drive and the eastbound

loop on-ramp from Coffee Drive would be required. Other minor modifications within the existing Westside Parkway right-of-way may be required in order for the roadway to meet current Caltrans design standards.

Segment 3 (Western Connection)

Segment 3 traffic would use Stockdale Highway as the link to Interstate 5. Improvements would be required at the Stockdale Highway and State Route 43 (Enos Lane) intersection for each build alternative. Proposed improvements there would widen the intersection and add traffic signals to control traffic movement. State Route 43 would be widened to add a dedicated left-turn lane in both directions. Stockdale Highway would be widened to add a dedicated left-turn lane and a shared through/right-turn lane in both directions, necessitating the acquisition of a small amount of right-of-way. In addition, utilities would be relocated in this location. These improvements would be built at the same time as the Segment 1 improvements to ensure adequate traffic operations at this intersection. Stockdale Highway would be designated as State Route 58 to provide access to Interstate 5. The existing portion of State Route 58 (West) (Rosedale Highway) from Allen Road to Interstate 5 would be relinquished (become a local road, no longer a state highway) to the local jurisdictions (City of Bakersfield and the County of Kern). The portion of State Route 58 (West) (Rosedale Highway) from Allen Road to Mohawk Street was relinquished in June 2012.

No-Build Alternative

No construction of Segment 1 or improvements to the Westside Parkway and the Stockdale Highway/State Route 43 intersection would occur under the No-Build Alternative. The portion of Mohawk Street from the Westside Parkway to Rosedale Highway would be designated as part of State Route 58, which would provide a connection to State Route 99. Even if the No-Build Alternative is selected, other roadway improvements would be implemented that are unrelated to the Centennial Corridor Project. These roadway improvements are to other local roadways and are identified in the Regional Transportation Plan and the Metropolitan Bakersfield Transportation Impact Fee Program. These improvements have been assumed in the analyses of the No-Build Alternative. Though these improvements would result in some improvement in the level of service they would not provide the route continuity, which is identified as part of the project's purpose.

1.2.1. Construction Schedule

Construction of Segment 1 would start in 2016 and be completed by 2018.

1.2.2. Construction-related Impacts

Permanent project impacts are considered in areas that would be within the project's final right-of-way. Also, if an adjacent property would be acquired and the building structures removed, the impact is considered permanent. Temporary project impacts include those necessary for grading, staging areas, construction access, borrow and disposal sites, and utility relocations. And, if an adjacent property would be acquired but the building structures would not be removed (e.g., alternate access to the property would be provided), the impact would be considered temporary.

Chapter 2. Study Methods

This section discusses the regulatory requirements used to evaluate the project impacts and the methods used to identify the existing vegetation types and wildlife communities present and to determine the potential for special-status species to be present within or adjacent to the biological study area.

2.1. Regulatory Requirements

2.1.1. Federal Requirements

2.1.1.1. FEDERAL ENDANGERED SPECIES ACT

The Federal Endangered Species Act protects plants and animals that the government has listed as “endangered” or “threatened.” A federally listed species is protected from unauthorized “take,” which is defined in the Federal Endangered Species Act as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or attempt to engage in any such conduct.”

2.1.1.2. CLEAN WATER ACT

The U.S. Army Corps of Engineers Regulatory Branch regulates activities that discharge dredged or fill materials into wetlands and other “Waters of the U.S.” under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.

Section 401 of the Clean Water Act gives the Regional Water Quality Control Board the authority to regulate, through a Water Quality Certification, any proposed, federally permitted activity that may affect water quality. Development allowed within any identified jurisdictional areas in the biological study area may be subject to requirements under Sections 401 and 404 of the Clean Water Act.

2.1.1.3. EXECUTIVE ORDER 11990

Executive Order 11990 directs federal agencies to (1) minimize the destruction, loss, or degradation of wetlands and (2) preserve and enhance the natural and beneficial values of wetlands in carrying out the agencies’ responsibilities.

2.1.1.4. EXECUTIVE ORDER 13112

Under Executive Order 13112, federal agencies cannot authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction of spread of invasive species.

2.1.1.5. MIGRATORY BIRD TREATY ACT

Pursuant to the Migratory Bird Treaty Act of 1918, federal law prohibits the taking of migratory birds, their nests, or their eggs (16 *United States Code*, Section 703).

In 1972, the Migratory Bird Treaty Act was amended to include protection for migratory birds of prey (such as raptors).

2.1.2. State Requirements

2.1.2.1. CALIFORNIA ENDANGERED SPECIES ACT

Pursuant to the California Endangered Species Act and Section 2081 of the *California Fish and Game Code*, an Incidental Take Permit from the California Department of Fish and Wildlife is required for projects that could result in the take of a state-listed threatened or endangered species. Under the California Endangered Species Act, “take” is defined as an activity that would directly or indirectly kill an individual of a species. A consistency finding per Section 2080.1 of the California Endangered Species Act is issued when the conditions of a federal incidental take statement (U.S. Fish and Wildlife Service Biological Opinion) are consistent with the California Endangered Species Act.

2.1.2.2. PORTER-COLOGNE ACT

The Porter-Cologne Act provides the State of California with very broad authority to regulate “Waters of the State,” which are defined as any surface water or groundwater, including saline waters.

2.1.2.3. CALIFORNIA FISH AND GAME CODE

Sections 1600–1616 of the *California Fish and Game Code* protect “Waters of the State.” Activities of state and local agencies as well as public utilities that are project proponents are regulated by the California Department of Fish and Wildlife under Section 1602 of the code; this section regulates any work that would (1) substantially divert or obstruct the natural flow of any river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. For project activities (described above) that may affect stream channels and/or riparian vegetation regulated under Sections 1600 through 1603, California Department of Fish and Wildlife notification is required and may require a Streambed Alteration Agreement.

2.1.2.4. UNLAWFUL TAKE OR DESTRUCTION OF NESTS OR EGGS

Sections 3503 and 3503.5 of the *California Fish and Game Code* specifically protect nests and eggs of birds of prey.

Section 3513 of the *California Fish and Game Code* duplicates the federal protection of migratory birds and prohibits the take and possession of any migratory nongame bird, as designated in the Migratory Bird Treaty Act.

2.1.2.5. CALIFORNIA ENVIRONMENTAL QUALITY ACT—TREATMENT OF NON-LISTED PLANT AND ANIMAL SPECIES

Section 15380 of the California Environmental Quality Act Guidelines indicates that a lead agency can consider a non-listed species (e.g., California Native Plant Society [CNPS] List 1B and 2 plants) to be endangered, rare, or threatened for the purposes of the California Environmental Quality Act if the species can be shown to meet the criteria in the definition of “rare” or “endangered.”

2.1.3. Habitat Conservation Plans

2.1.3.1. METROPOLITAN BAKERSFIELD HABITAT CONSERVATION PLAN

The City of Bakersfield and the County of Kern developed the *Metropolitan Bakersfield Habitat Conservation Plan* (MBHCP) to acquire Incidental Take Permits, which would allow take of federally and state-listed species included in the plan. The permits acquired include a permit under Section 10(a)(1)(B) of the Federal Endangered Species Act, and a permit under Section 2081 of the California Endangered Species Act. The Metropolitan Bakersfield Habitat Conservation Plan is designed to offset impacts resulting from loss of habitat incurred through the authorization of an otherwise lawful activity. The goal of the plan is to “acquire, preserve, and enhance native habitats which support endangered and sensitive species while allowing urban development to proceed as set forth in the Metropolitan Bakersfield 2010 General Plan” (Thomas Reid Associates 1994).

Development actions pursuant to the Metropolitan Bakersfield Habitat Conservation Plan will result in the incidental take of some species, generally through the loss of suitable habitat and displacement of individuals as development occurs. The state and federal permits would make this take lawful as long as it is in accordance with the conditions of the permits as described in the plan.

The biological study area sits within the sphere of the Metropolitan Bakersfield Habitat Conservation Plan, which expired in 2014; however, the Incidental Take

Permit has been extended to 2019. Therefore, the Section 7 Consultation allowed the plan to be used to mitigate for this project's impacts.

2.2. Studies Required

2.2.1. Biological Study Area

The project is located in the southern San Joaquin Valley in Kern County (Figure 3). The project is divided into three segments; this Natural Environment Study focuses on Segment 1, which extends west from east of State Route 99 near the intersection of State Route 58 (East) and Cottonwood Road to the Westside Parkway near Mohawk Street. The biological study area for the project includes three alternative alignments and the intersection of Stockdale Highway and State Route 43 (where intersection improvements are proposed), plus a 500-foot buffer area on either side of the project right-of-way (Figures 4A–4C). The biological study area is larger than the area directly or indirectly impacted by project construction activities.

The data provided in this report for Segment 1 were taken from biological studies done in the spring/summer of 2008 and spring/summer 2009 and from information obtained in literature reviews. Surveys were conducted in 2012 for the improvements at Stockdale Highway and State Route 43.

2.2.2. Literature Review

Before the field surveys, a list of special-status plant and animal species potentially occurring in the biological study area or within a 10-mile query radius of the biological study area was established through a literature review. The literature review was updated in 2009, 2011, and 2015 during the preparation and updates of the Natural Environment Study.

The following were reviewed for the U.S. Geological Survey's Conner, Millux, Mouth of Kern, Taft, Gosford, Stevens, Tupman, East Elk Hills, Oildale, Rosedale, Rio Bravo, Buttonwillow, North of Oildale, Weed Patch, Edison, Lamont, and Oil Center 7.5-minute quadrangles: the California Native Plant Society's Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2008, 2009, 2011, and 2015 see Appendix C); the California Department of Fish and Wildlife's California Natural Diversity Database (CDFG 2008, 2009, and 2011 and CDFW 2015 see Appendix C); and a List of Proposed, Threatened, and Endangered Species (USFWS 2009, 2011 and 2015, see Appendix C).

The *Western Rosedale Specific Plan* (Kern County 1994), the *Metropolitan Bakersfield General Plan* (Bakersfield and Kern County 2002), the Metropolitan Bakersfield Habitat Conservation Plan and supporting documents (Thomas Reid Associates 1994, 1991, and 1990), and the U.S. Fish and Wildlife Service's *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1998) were also reviewed.

Other documentation that included information on biological resources in the biological study area and in the general project vicinity were reviewed, including the *7th Standard Road Widening Environmental Assessment/Initial Study with Proposed Mitigated Negative Declaration* (Caltrans 2006), the *Tier II Environmental Assessment/Final Environmental Impact Report for Westside Parkway* (Bakersfield et al. 2006), the *Natural Environment Study Westside Parkway* (Bakersfield Public Works Department and Federal Highway Administration 2005), the *Biological Assessment Route 58 Adoption, Interstate 5 to State Route 99* (Caltrans et al. 1998), the *Kern County Waste Facilities Habitat Conservation Plan* (Kern County Waste Management Department 1997), the *Kern Water Bank Authority Habitat Conservation Plan* (Kern Water Bank Authority 1997), and the *Draft Kern County Valley Floor Habitat Conservation Plan* (Garcia and Associates 2006).

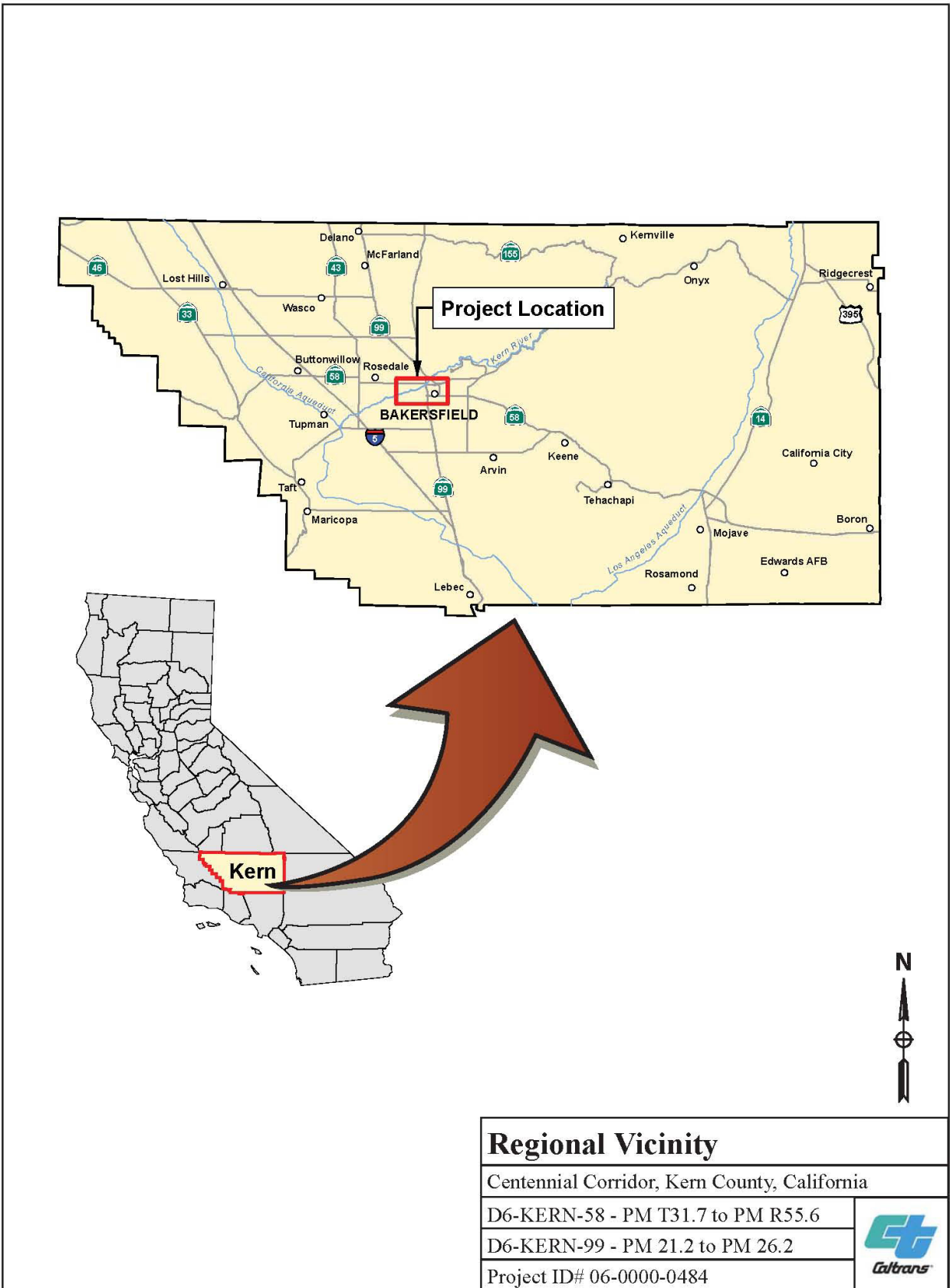


Figure 3

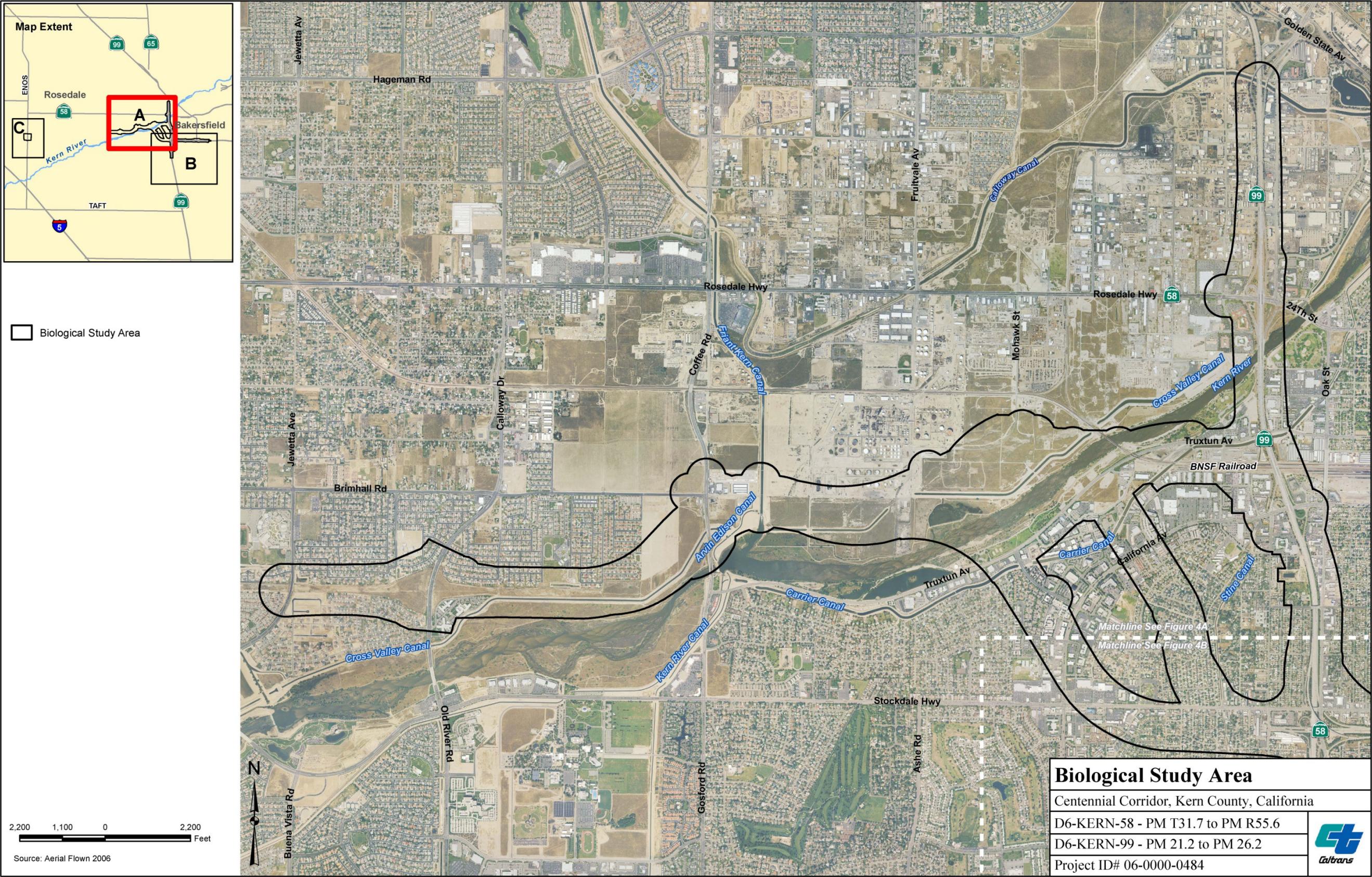


Figure 4A

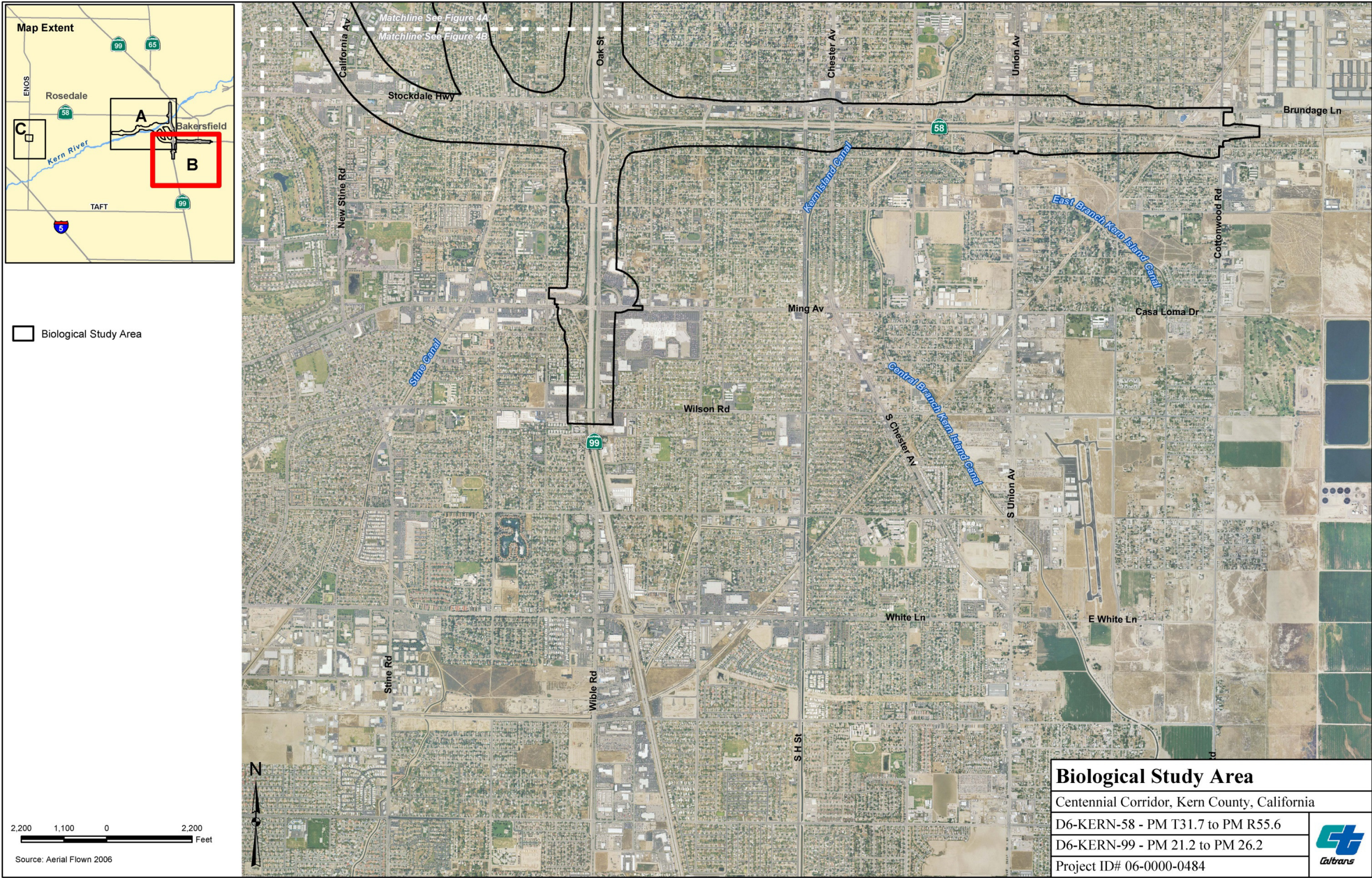


Figure 4B

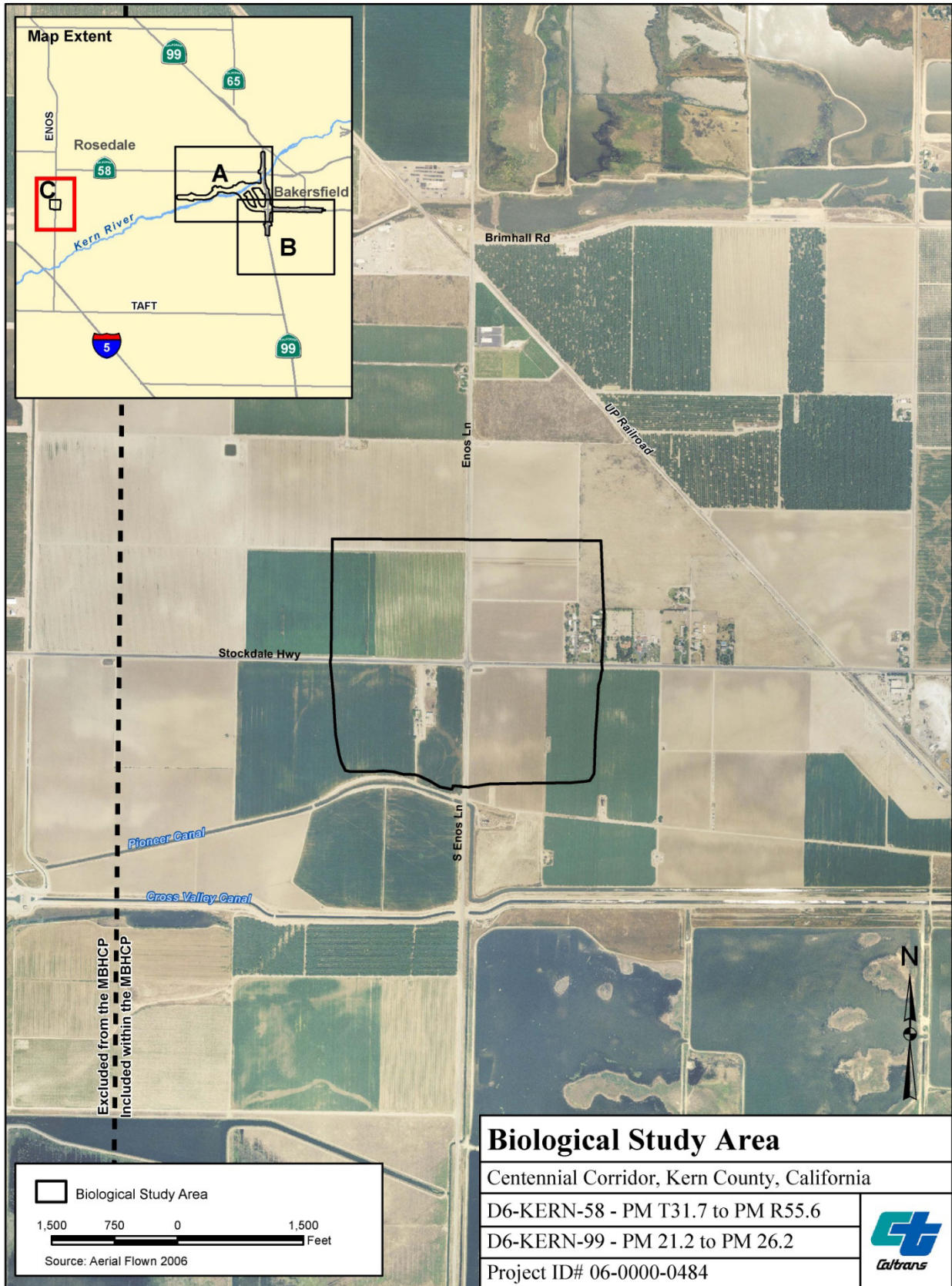


Figure 4C

2.2.3. Vegetation Mapping

Vegetation mapping was done in spring 2008 to describe the vegetation present throughout the biological study area and to evaluate the habitat's potential to support special-status plant and wildlife species. During project design, the position of the alignments slightly changed the extent of the buffer in some areas; additional areas were mapped concurrently with special-status plant surveys in 2009. The intersection of Stockdale Highway and State Route 43 was mapped in 2011.

2.2.3.1. BOTANICAL SURVEYS

Focused surveys for special-status species were done in spring/summer 2008 and spring/summer 2009. Focused surveys for special-status species were done in spring/summer 2012 for Stockdale Highway and State Route 43. Rare plant surveys were done to identify all special-status plant species, but survey timing was focused on the optimal blooming period for higher status species (threatened, endangered, and California Native Plant Society List 1B species) with potential to occur in the biological study area, including Bakersfield smallscale (*Atriplex tularensis*), California jewelflower, Kern mallow (*Eremalche kernensis* [*E. parryi* ssp. *kernensis*]), San Joaquin woollythreads (*Monolopia* [*Lembertia*] *congdonii*), and Bakersfield cactus (*Opuntia basilaris* var. *treleasei*). Rare plant surveys followed the most current California Native Plant Society Guidelines at the time of the surveys (California Native Plant Society 2001, California Department of Fish and Game 2009).

Rare plant surveys were done by biologists walking in transects about 30 feet apart within suitable habitat in the biological study area. Before doing the rare plant surveys in 2008, 2009, and 2012, biologists visited reference populations of Kern mallow and San Joaquin woollythreads in southwestern Kern County to confirm their flowering status and to verify that the surveys in the study area were done during the appropriate blooming period for these species. In mid- to late-March, Kern mallow was confirmed to be in bloom at the Lokern Preserve, about 30 miles west of Bakersfield, and San Joaquin woollythreads was confirmed to be in bloom at a small population east of Lost Hills near the intersection of State Route 46 and Interstate 5. Reference populations of Bakersfield cactus were not visited before the surveys as this is a perennial species that is identified based on vegetative morphology. Reference populations of California jewelflower and Bakersfield smallscale were not visited since no known reference populations of these species are located within the San Joaquin Valley floor (U.S. Fish and Wildlife Service 1998). California jewelflower and San Joaquin woollythreads did not bloom at the reference populations in 2012 due to lack of rain.

Plant species were identified in the field or collected for later identification. All voucher specimens collected were deposited at the Rancho Santa Ana Botanic Gardens herbarium in Claremont, California. Results of the surveys are included in the focused survey reports prepared for the project (BonTerra Consulting 2009a, 2009b). Results of surveys for Stockdale Highway and State Route 43 are incorporated into this Natural Environment Study. All plant species observed were recorded in field notes and are listed in Appendix D.

2.2.4. Wildlife Surveys

Wildlife species surveys were done in the biological study area in 2008 and 2009. All wildlife species observed were recorded in field notes and are listed in Appendix D.

2.2.4.1. BURROWING OWL

Burrowing owl (*Athene cunicularia*) surveys were conducted following the *Burrowing Owl Survey Protocol and Mitigation Guidelines* prepared by the California Burrowing Owl Consortium (1993). Surveys were done in spring/summer 2008. To survey, biologists walked transects through potential habitat with spacing that allowed 100 percent coverage of the ground surface. The burrow surveys were not done within five days of rain, which could have washed away potential sign. Surveys beyond private property boundaries were sometimes limited to what could be observed with binoculars unless authorization to access the area was obtained.

Areas of bare ground, low-density vegetation, human-made structures, abandoned equipment, and other areas considered suitable for the burrowing owl were surveyed. All natural or human-made cavities large enough to allow burrowing owl entry were inspected for evidence of occupation. Evidence of occupation may include prey remains, cast pellets, white-wash, feathers, and observations of owls adjacent to burrows. Any evidence of owl occupation was described and mapped, and the location of the evidence was recorded using a Global Positioning System (GPS) unit.

A crepuscular (dawn or dusk) owl survey was done in several areas within the survey area because potential burrows were observed during the burrow survey. Morning crepuscular surveys were done from one hour before sunrise to two hours after sunrise, and evening crepuscular surveys were done from two hours before sunset to one hour after sunset. Crepuscular surveys were conducted only when there was enough light to observe potential flights of burrowing owls.

Four crepuscular surveys of each potential burrow were conducted, as required by the protocol. The surveys were done during weather conditions that were appropriate for

locating burrowing owls. Binoculars were used to inspect potential perches such as rocks, fence posts, and other elevated structures for the presence of owls before approaching each area. Morning surveys began at about 5:00 a.m. and extended to at least 7:30 a.m. Evening surveys began at or before 6:00 p.m. and extended to about 8:30 p.m. Results of the surveys are included in the focused survey report prepared for the project (BonTerra Consulting 2008).

2.2.4.2. SWAINSON'S HAWK

Surveys for nesting Swainson's hawk (*Buteo swainsoni*) were done in 2009 and followed the recommendations of the Swainson's Hawk Technical Advisory Committee (2000). These guidelines recommend surveying all potentially suitable habitat within 0.5 mile of the project. The guidelines state that surveys from the car while driving at reduced speeds (about 5 miles per hour) are preferable to walking; however, roads were not present near areas of potential habitat, so driving surveys were not possible. Surveys were done on foot using binoculars and a spotting scope to identify raptor species.

Swainson's Hawk Technical Advisory Committee (2000) guidelines state that one survey should be done during each of five survey periods. Swainson's hawks are migratory and not expected to be present during the first survey window (January 20–March 20), so the surveys should focus on locating and identifying potential nesting trees and other raptor species potentially competitive with the Swainson's hawk. Surveys in the second survey window (March 20–April 5), when most Swainson's hawks have returned to their breeding grounds, should be done from sunrise to 10:00 a.m. and again at the end of day from 4:00 p.m. to sunset. Courtship and nest-building activities are at their peak during the third survey window (April 5–April 20), and these surveys should be done from sunrise to 12:00 p.m. and from 4:30 p.m. to sunset. The Swainson's Hawk Technical Advisory Committee recommends that surveys during the fourth survey window (April 21–June 10) be limited to monitoring active nest sites. Young Swainson's hawks are active and very visible during the fifth survey window (June 10–June 30) and, if present, should be easily detected.

Surveys were done on March 9 (7:00 a.m.–12:00 p.m.), March 23 (7:30 a.m.–10:30 a.m. and 3:30 p.m.–6:00 p.m.), March 24 (6:45 a.m.–10:30 a.m.), April 6 (6:30 a.m.–10:00 a.m. and 3:00 p.m.–5:45 p.m.), April 7 (6:30 a.m.–9:30 a.m.), June 2 (5:30 a.m.–9:30 a.m.), and July 29 (6:15 a.m.–10:00 a.m.). Although the Swainson's Hawk Technical Advisory Committee (2000) survey protocol does not recommend surveys in the last two survey windows, if no Swainson's hawks are

observed during the first three survey windows, surveys are to be conducted during the last two survey windows to further confirm absence of the species. Results of the surveys are included in the focused survey report prepared for the project (BonTerra Consulting 2009c).

2.2.4.3. SAN JOAQUIN KIT FOX

Surveys for San Joaquin kit fox (*Vulpes macrotis mutica*) dens and sign were done in the biological study area following a methodology established for the Thomas Roads Improvement Program and approved by the U.S. Fish and Wildlife Service and California Department of Fish and Game (consultation described below in Section 2.5). The biological study area was surveyed once on September 17, 2008. All accessible habitat within a 250- to 500-foot boundary from the right-of-way was surveyed. Surveys were done on accessible parcels where the property owner had granted access. In general, field surveys did not include residential property.

During surveys, biologists walked linear transects within the survey area; transects were separated by no more than 50 feet and included 100 percent visual coverage. At all times, biologists had maps that included locations of known kit fox dens, sightings, and activity areas as reported in the California Natural Diversity Database (California Department of Fish and Game 2008), the Metropolitan Bakersfield Habitat Conservation Plan kit fox den database (Bakersfield 2008), and in Bjurlin et al. (2005).

Data collected during the surveys included potential dens, natal dens, sign, and kit fox observations. Kit fox dens were described as potential and natal according to descriptions provided in the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (U.S. Fish and Wildlife Service 1999b). All dens were further described in field notes by number of entrances; proximity to nearest road; potential for den to be located within the proposed new alignment; substrate; and surrounding habitat type. Kit fox data were recorded using a Global Positioning System unit. Kit fox data categories are described below.

Potential Den: A potential den is any subterranean hole that has entrances of appropriate dimensions and for which available evidence is insufficient to conclude that it is being used or has been used by a kit fox (USFWS 1999b). Dens were not described as having kit fox potential if there were signs of active use by a squirrel (fresh scat, tracks) and/or if the biologist saw a squirrel using the den during the time

of surveys. A potential den was presumed active if excavation appeared recent or recently maintained and/or included kit fox sign within about 10 feet of the den.

Natal Den: A natal den is any den used by kit foxes to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances (USFWS 1999b).

Sign: Kit fox scat, tracks, and/or prey remains.

Observations: Visual sightings of live or dead kit foxes within the biological study area.

Results of the surveys are included in the *San Joaquin Kit Fox Life History, Effects Analysis, and Conceptual Mitigation Strategy* (City of Bakersfield and Caltrans 2009) and *San Joaquin Kit Fox Effects Analysis, Mitigation Strategy, and Implementation Plan* (City of Bakersfield and Caltrans 2010).

2.2.5. Jurisdictional Delineation

“Waters of the U.S.” are defined as those waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide and all interstate waters including interstate wetlands. This definition also includes intrastate lakes, rivers, streams (including intermittent ephemeral streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds where the use, degradation, or destruction of which would affect interstate or foreign commerce.

“Waters of the U.S.” are under the jurisdiction of the U.S. Army Corps of Engineers and the Regional Water Quality Control Board; “Waters of the State” are under the jurisdiction of the California Department of Fish and Wildlife and the Regional Water Quality Control Board.

A jurisdictional delineation was done for the biological study area to determine the type and extent of “Waters of the U.S.” under the jurisdiction of the U.S. Army Corps of Engineers and the Regional Water Quality Control Board and the extent of “Waters of the State” that are under the jurisdiction of the California Department of Fish and Wildlife and the Regional Water Quality Control Board. The delineation was conducted based on (1) the current regulations, policies, and guidance letters provided by these regulatory agencies; (2) the *Regional Supplement to the Corps of*

Engineers Wetland Delineation Manual: Arid West Region (USACE 2008); and (3) the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). Results of the delineation are included in Appendix E (BonTerra Psomas 2015).

2.3. Personnel and Survey Dates

Consulting Botanists Pam De Vries and Otto Gasser conducted a general plant survey, a habitat assessment for special status plant species, and vegetation mapping on April 4 and 13, and May 27 and 30, 2008. Ms. DeVries conducted a general plant survey, a habitat assessment for special-status plant species, and vegetation mapping for Stockdale Highway and State Route 43 on November 14, 2011.

Ms. De Vries and Mr. Gasser conducted the 2008 focused surveys for special-status plants on March 24, 27, and 28, and May 15, 21, and 22, 2008. Botanist Andrea Edwards and Biologist Kimberly Oldehoeft assisted with surveys on March 27, 2008. Ms. DeVries, Ms. Edwards, and Senior Botanist Sandra Leatherman conducted the 2009 focused surveys for special-status plant species from March 24 to 27, and May 5 to 7, 2009. Ms. DeVries Mr. Gasser conducted the 2012 focused surveys for special-status plant species at Stockdale Highway and State Route 43 on March 27 and June 4, 2012.

Ms. Oldehoeft and Biologist Allison Rudalevige conducted focused surveys for burrowing owl on March 24 and 27; May 14 through 16, 22, and 28 through 30; June 10 through 13; July 29 and 30; and August 21 and 22, 2008. Wildlife Biologist Lindsay Messett conducted a burrow survey at Stockdale Highway and State Route 43 on April 4, 2012.

Senior Wildlife Biologist Brian Daniels conducted focused surveys for Swainson's hawk on March 9, 23, and 24; April 6 and 7; June 2; and July 29, 2009.

Wildlife Biologist Stephanie Coppeto conducted San Joaquin kit fox den and sign surveys once on September 17, 2008. Ms. Messett conducted a survey for potential dens at Stockdale Highway and State Route 43 on April 4, 2012.

Regulatory Specialist Gary Medeiros and Ms. Rudalevige conducted a jurisdictional delineation on September 24, 2008. Ms. Rudalevige and Wildlife Biologist Jason Mintzer updated the delineation to include areas not previously mapped on December 1, 2011. Following completion of construction of the Westside Parkway,

Ms. Rudalevige and Biologist Sean Noonan updated a portion of the delineation in the vicinity of the Westside Parkway on August 27, 2014.

2.4. Agency Coordination and Professional Contacts

A list of species to be addressed within the Natural Environment Study for the project was generated using the U.S. Fish and Wildlife Service website on February 24, 2009, December 5, 2011, and January 12, 2015 (Appendix C).

2.4.1. Previous Consultation/Coordination for State Route 58 (Segments 2 and 3)

2.4.1.1. JURISDICTIONAL WETLANDS AND WATERS

Caltrans began coordinating with the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency in February 1994. A Section 404 permit pre-application meeting was held on May 5, 1994, with the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the Federal Highway Administration, the California Department of Fish and Game, and the U.S. Fish and Wildlife Service. In a letter dated May 23, 1994, the Federal Highway Administration requested that the U.S. Fish and Wildlife Service become a cooperating agency in the development of a Draft Environmental Impact Statement/Environmental Impact Report for the Route 58 Adoption and participate in the coordination process, as outlined in the Memorandum of Understanding among the Federal Highway Administration, Caltrans, and the U.S. Fish and Wildlife Service. On June 28, 1997, the U.S. Fish and Wildlife Service agreed to participate in preparation of the Draft Environmental Impact Statement/Environmental Impact Report as a cooperating agency and to provide comments in accordance with the Memorandum of Understanding (Caltrans et al. 1998; Bakersfield Public Works Department and Federal Highways Administration 2005).

Caltrans did a wetland delineation along the proposed alternative alignments; the delineation was verified by the U.S. Army Corps of Engineers on October 30, 1995. In a letter dated June 28, 1994, the U.S. Environmental Protection Agency stated the project did not appear to meet the criteria established in the Memorandum of Understanding between the Federal Highway Administration, U.S. Environmental Protection Agency, and U.S. Army Corps of Engineers, and would therefore require coordination among these agencies for the National Environmental Policy Act and Section 404 permitting processes. Caltrans began detailed environmental studies; some alternatives were withdrawn from further consideration to reduce or avoid

impacts to jurisdictional wetlands or because they did not meet the project purpose and need.

Before circulation of the Draft Environmental Impact Statement/Environmental Impact Report, the U.S. Army Corps of Engineers was informed that the preferred alternative did not cross any jurisdictional wetlands. The U.S. Army Corps of Engineers responded that a Nationwide Permit 14 would likely be required before project construction, and the National Environmental Policy Act/Section 404 coordination process would not be applicable. The Department of the Interior provided comments on the Draft Environmental Impact Statement/Environmental Impact Report on February 12, 1998 (Caltrans et al. 1998; Bakersfield PWD and FHWA 2005).

Most projects receiving a U.S. Army Corps of Engineers Nationwide Permit also need an individual 401 Water Quality Certification from the Regional Water Quality Control Board. The Regional Water Quality Control Board has pre-certified the activities authorized by some Nationwide Permits if activities are in compliance with certain conditions, these are known as Non-notifying Nationwide Permits. Following circulation of the environmental document, project engineers were able to redesign portions of the alignment to avoid and minimize impacts on jurisdictional areas and reduced the Project's permanent impacts to areas within the jurisdiction of the U.S. Army Corps of Engineers to less than 0.10 acre. The Project now qualifies for one of these Non-notifying Nationwide Permits. If during final design, the Project impacts to U.S. Army Corps of Engineers jurisdiction need to be increased to 0.10 acre or greater, a Nationwide Permit #14 would be used.

2.4.1.2. SECTION 7 CONSULTATION

The U.S. Fish and Wildlife Service consulted with Caltrans about other projects in 1996 and suggested that effects on endangered species in the San Joaquin Valley be addressed in a formal programmatic consultation to meet the requirements described in the *Conner v. Burford*, 949 F. 2d 1441 (9th Circuit 1988) court ruling. The U.S. Fish and Wildlife Service first recommended formal programmatic consultation in its Biological Opinion of September 19, 1996, on a proposed project to repave and widen a portion of State Route 46 between State Route 33 and Interstate 5 in Kern County (Caltrans et al. 1998; Bakersfield PWD and FHWA 2005).

The U.S. Fish and Wildlife Service requested an extension for delivery of the Biological Opinion to December 31, 1998, from November 30, 1998, in a letter dated

November 30, 1998, to the Federal Highway Administration (Caltrans et al. 1998; Bakersfield PWD and FHWA 2005).

Endangered species consultation was finalized, and a Section 7 Biological Opinion (#1-1-98-F-0139) was issued for State Route 58 by the Sacramento Fish and Wildlife Office of the U.S. Fish and Wildlife Service on March 22, 1999, and amended on February 18, 2005 (#1-1-04-F-0194), to revise the project description to describe the Westside Parkway project (Appendix F). The Biological Opinion was amended to allow 27 nights of nighttime work on the Friant-Kern Canal portion of the project for utility relocation and to reflect proposed compensation ratios for the Mohawk Street Extension project and future phases of the Westside Parkway Street Extension project (#81420-2008-F-0368-27 and #81420-2008-F-0368-28). Terms and conditions included in the Biological Opinion are summarized in Section 4 of this report. After issuance of the Biological Opinion, there were additional interactions between the Federal Highway Administration and the U.S. Fish and Wildlife Service regarding study design and scheduling of terms and conditions of the Biological Opinion. Included in the written interactions were letters from the Federal Highway Administration to the U.S. Fish and Wildlife Service dated October 22, 1999, and December 19, 2000, as well as letters from the U.S. Fish and Wildlife Service to Federal Highway Administration dated December 14, 1999, and August 29, 2000. A March 29, 2004, letter from Raul Rojas, Public Works Director for the City of Bakersfield, to Susan Jones of the U.S. Fish and Wildlife Service summarized the City's approach to compliance with Terms and Conditions 4d and 4e of the Biological Opinion. The former required that data be collected on (1) the movement of San Joaquin kit fox along the State Route 58 alignment; (2) kit fox vehicle strikes on highways; and (3) the effectiveness of culverts for kit fox movement corridors. Term and Condition 4e required that a study be done to evaluate the status of the least Bell's vireo (*Vireo bellii pusillus*) along the Kern River from Lake Isabella to Interstate 5. The letter also explained that the extent of the vireo study area had been reduced to Hart Memorial Park to Interstate 5 (Caltrans et al. 1998; Bakersfield Public Works Department and Federal Highways Administration 2005).

Information about the project was presented in August and September 2003 to Steve Strait, staff member for the Metropolitan Bakersfield Habitat Conservation Plan Implementation Trust Group. Mr. Strait used the information to prepare a staff report to the Metropolitan Bakersfield Habitat Conservation Plan Implementation Trust Group for its September 11, 2003, meeting. Approval was required from the Metropolitan Bakersfield Habitat Conservation Plan Implementation Trust Group to

accept the portion of the Westside Parkway project in the Kern River floodplain for mitigation through the Metropolitan Bakersfield Habitat Conservation Plan. At the September 11, 2003, meeting, the Metropolitan Bakersfield Habitat Conservation Plan Implementation Trust Group approved the project, subject to concurrence by the U.S. Fish and Wildlife Service and the California Department of Fish and Game. A September 17, 2003, memo from Tom Olson of Garcia and Associates to Ms. Jones of the U.S. Fish and Wildlife Service and Michelle Selmon of the California Department of Fish and Game (both resource agency advisory members of the Metropolitan Bakersfield Habitat Conservation Plan Implementation Trust Group) summarized changes in the project description between the State Route 58 Route Adoption and the Westside Parkway project (Caltrans et al. 1998; Bakersfield Public Works Department and Federal Highways Administration 2005).

2.4.2. San Joaquin Kit Fox Conceptual Strategy for the TRIP Program

During preparation of the San Joaquin Kit Fox Conceptual Strategy for the Thomas Roads Improvement Program, AECOM biologists and the City of Bakersfield frequently consulted with the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife, Caltrans, Dr. Brian Cypher with the Endangered Species Recovery Program (ESRP), and other environmental consultants with knowledge of the status and distribution of the San Joaquin kit fox in the Bakersfield area. AECOM biologists, the City, and Caltrans coordinated with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife on the approach for San Joaquin kit fox field surveys, potential project-specific and program-level effects of the Thomas Roads Improvement Program, and mitigation options for project-specific impacts.

The City and Caltrans (acting as the federal lead on behalf of the Federal Highway Administration) initiated a Section 7 consultation on July 22, 2013 under the Federal Endangered Species Act with the U.S. Fish and Wildlife Service for the six Thomas Roads Improvement Program projects evaluated in this conceptual strategy. The following is a summary of consultation to date with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife for the Thomas Roads Improvement Program.

November 20, 2007: The City and Caltrans authorized AECOM to develop a San Joaquin kit fox conceptual strategy to determine the potential effects of the Thomas Roads Improvement Program projects on the kit fox and to evaluate mitigation options for such effects. The U.S. Fish and Wildlife Service and the California

Department of Fish and Game concurred that a conceptual strategy was needed. The U.S. Fish and Wildlife Service requested cumulative and project-specific analyses of potential effects on kit fox to comply with the Section 7 consultation for each Thomas Roads Improvement Program project evaluated.

June 3, 2008: The U.S. Fish and Wildlife Service and the California Department of Fish and Game concurred on methods AECOM proposed to develop the kit fox conceptual strategy, including diurnal surveys for kit fox dens and sign; collaboration with Dr. Cypher; a project-specific and cumulative approach to evaluating potential impacts on kit fox; and efforts to avoid, minimize, and compensate for potential effects. The U.S. Fish and Wildlife Service, the California Department of Fish and Game, Caltrans, AECOM, and the City agreed to meet throughout the development of the conceptual strategy to ensure that it complied with the Federal Endangered Species Act and the California Endangered Species Act. The U.S. Fish and Wildlife Service, the California Department of Fish and Game, Caltrans, AECOM, and the City also agreed to visit the various Thomas Roads Improvement Program projects in Bakersfield.

July 8, 2008: The California Department of Fish and Game, Caltrans, AECOM, the City, Steve Pruett of Paul Pruett and Associates, and Dr. Cypher toured various Thomas Roads Improvement Program projects in Bakersfield.

August 26, 2008: AECOM presented preliminary results of kit fox surveys. The U.S. Fish and Wildlife Service identified habitat connectivity and the maintenance of corridors that connect kit fox populations as major issues facing kit foxes in the Bakersfield area. Potential compensatory mitigation options were discussed, including culverts, refugia, and kit fox artificial dens.

October 7, 2009: The U.S. Fish and Wildlife Service issued a letter (#81420-2008-TA-0368-29) concurring with the conceptual mitigation strategy.

March 11, 2010: The U.S. Fish and Wildlife Service and California Department of Fish and Game approved the Draft Thomas Roads Improvement Program San Joaquin Kit Fox Effects Analysis, Mitigation Strategy, and Implementation Plan. The report included (1) information on the San Joaquin kit fox life history and focuses on aspects that are unique to the urban kit fox population in Bakersfield; (2) a program-level analysis of anticipated Thomas Roads Improvement Program impacts; and (3) a conceptual mitigation implementation plan. The report also included project engineering design changes to reduce kit fox impacts, monitoring and reporting

requirements, and proposed compensatory mitigation measures. The plan incorporates the strategies discussed in consultation with the U.S. Fish and Wildlife Service and California Department of Fish and Game. The California Department of Fish and Game recommended that Caltrans seek a 2081 permit for projects requiring a State Incidental Take Permit. The U.S. Fish and Wildlife Service and California Department of Fish and Game approved the Sump Habitat Program and requested that the City, in coordination with Caltrans, establish long-term conservation assurances for the 19 sumps through conservation easements, endowment, and a long-term management plan.

May 5, 2010: Stephanie Coppeto and Leo Edson held an informal teleconference with the U.S. Fish and Wildlife Service to discuss the Endangered Species Act compliance approach and schedule before the May 11, 2010, meeting (which Sue Jones and Jen Schofield would not be able to attend). For compensatory mitigation, the U.S. Fish and Wildlife Service requested that the City submit a letter of commitment with each Biological Assessment for the Sump Habitat Program.

May 11, 2010: Caltrans would submit project Biological Assessments to the U.S. Fish and Wildlife Service and the California Department of Fish and Game for concurrent review to expedite the California Endangered Species Act consultation process. The Sump Habitat Program would be discussed in the Biological Assessments, but the requirements (easement application, management plan, and endowment) would not need to be met before construction of a road project. The California Department of Fish and Game is willing to hold the conservation easement for the sumps, and the City and Caltrans will identify an agency-approved endowment holder. The City and Caltrans considered identifying an alternative cumulative mitigation strategy in the event that the Sump Habitat Program is fiscally infeasible.

July 14, 2010: Caltrans would submit the Draft Biological Assessment for the State Route 178/Morning Drive interchange to the California Department of Fish and Game for review and comment before submittal to the U.S. Fish and Wildlife Service to expedite the California Endangered Species Act process. The U.S. Fish and Wildlife Service and the California Department of Fish and Game approved the standard Avoidance and Minimization Measures that would be described for the San Joaquin kit fox in the Biological Assessment. The California Department of Fish and Game recommended that Caltrans and the City consider an alternative compensatory mitigation strategy to the Metropolitan Bakersfield Habitat Conservation Plan

because of concerns about plan expiration in 2014. The U.S. Fish and Wildlife Service and the California Department of Fish and Game agreed that mitigation for cumulative effects (Sump Habitat Program) could be described generally in the Biological Assessment to maintain flexibility while the program evolves, but that a chapter describing the cumulative mitigation framework that would later be finalized and included as Chapter 3 in the Thomas Roads Improvement Program San Joaquin Kit Fox Effects Analysis, Mitigation Strategy, and Implementation Plan, be submitted as a separate supporting document with the Biological Assessment. The California Department of Fish and Game requested that standard California Endangered Species Act requirements be included in the “Terms and Conditions” section of the Biological Opinion so that the Biological Opinion complies with the California Endangered Species Act.

August 18, 2010: The U.S. Fish and Wildlife Service and the California Department of Fish and Game agreed that the letter from the Metropolitan Bakersfield Habitat Conservation Plan Trust Group to the City (dated August 3, 2010) approving eligible Thomas Roads Improvement Program projects to participate in the fee payment program was valid for projects that are ready to build prior to Metropolitan Bakersfield Habitat Conservation Plan expiration in 2014, but asked that the City clarify that fees can be paid at higher than 1:1 ratios as required by the U.S. Fish and Wildlife Service. The City suggests that long-term conservation assurances for the Sump Habitat Program (mitigation for cumulative effects) include the National Fish and Wildlife Foundation as endowment holder, the California Department of Fish and Game as conservation easement holder, and the City as program manager. This arrangement would require review and approval by the California Department of Fish and Game and the U.S. Fish and Wildlife Service as the Sump Habitat Program continues to be finalized. The California Department of Fish and Game recommended that the Sump Habitat Program prioritize high and medium conservation priority sums that are owned in fee by the City.

December 3, 2010: The Metropolitan Bakersfield Habitat Conservation Plan Trust Group provided a letter to the City approving the ongoing use of the Metropolitan Bakersfield Habitat Conservation Plan for proposed compensation obligations for all TRIP projects. It also permitted payment to be completed on an individual project basis after the approval of the final environmental document for each project. The City will pay the appropriate amount to the Metropolitan Bakersfield Habitat Conservation Plan Trust Group and the Metropolitan Bakersfield Habitat

Conservation Plan Trust Group will acquire the appropriate amount of acreage to be protected in perpetuity.

January 2011: The U.S. Fish and Wildlife Service released an updated *Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance*.

May 11, 2011: Based on agency consultation and the release of the Draft Biological Opinion for the Morning Drive/State Route 178 Interchange Project, a 3:1 mitigation ratio was identified for all permanent impacts and a 1.1:1 ratio was identified for all temporary impacts. Caltrans is no longer seeking an Incidental Take Permit or a Consistency Determination under California Endangered Species Act as it is now assumed that take of San Joaquin kit fox, as defined under California Endangered Species Act, can be avoided. Caltrans and the City have identified the Wildlife Heritage Foundation, a non-profit land trust, to hold endowments necessary to fully fund the Sump Habitat Program and to oversee the conservation easement.

The Biological Assessment for the project would be prepared following selection of one of the alternatives as the preferred alignment, which will occur following circulation of the draft environmental document. The Biological Assessment would detail the project's potential effects on threatened and endangered species, including direct, indirect, interdependent, and interrelated effects.

April 15, 2013: Caltrans submitted a letter to the U.S. Fish and Wildlife Service requesting the initiation of formal consultation for the project. The letter included a Biological Assessment for the project that addressed all three alternative alignments for Segment 1.

May 16, 2013: The U.S. Fish and Wildlife Service contacted Caltrans to ask why three alternative alignments were presented. They indicated that they could not proceed with formal consultation until a preferred alignment was selected.

May 20-June 3, 2013: The U.S. Fish and Wildlife Service and Caltrans continued to discuss the issue of the alternatives.

June 5, 2013: Caltrans informed the U.S. Fish and Wildlife Service that they had selected Alternative B as the preferred alternative.

June 18, 2013: The U.S. Fish and Wildlife Service emailed Caltrans with a request for additional information and clarification on the Biological Assessment.

July 22, 2013: The U.S. Fish and Wildlife Service received a letter from Caltrans responding to the request for additional information and inquiring whether the project was now deemed complete so that initiation of formal consultation could begin. The letter included a comment resolution form and a revised copy of the Biological Assessment.

July 24, 2013: The U.S. Fish and Wildlife Service confirmed that the project was complete and formal consultation would begin on July 22, 2013.

November 21, 2013: The U.S. Fish and Wildlife Service emailed Caltrans with several project clarification questions.

December 6, 2013: Caltrans responded to the U.S. Fish and Wildlife Service November 21, 2013 email.

December 20, 2013: The U.S. Fish and Wildlife Service issued its Biological Opinion for the project concurring with Caltrans' determination that the project is likely to adversely affect the San Joaquin kit fox.

After the circulation of the Draft Environmental Impact Report/Environmental Impact Statement, Caltrans contacted the U.S. Fish and Wildlife Service to amend the Biological Opinion regarding minor changes to the project description. The amended Biological Opinion was approved by the U.S. Fish and Wildlife Service on February 24, 2015.

2.5. Limitations That May Influence Results

Average rainfall in Bakersfield is 6.5 inches annually. Rainfall in 2008 and 2009 was lower than average (about 2.25 inches and 4.55 inches, respectively); however, reference populations of threatened and endangered plants germinated in the project region (in the Lokern Preserve), indicating that results of special-status plant surveys would be considered valid for species observed at a reference population. Due to lower than average rainfall during the two years over which the general and focused surveys were done, the list of plant species present may not include all annual plant species present in the biological study area, though it is expected to contain a representative sample.

Rainfall in 2012 was more than average (8.55 inches); however, most of the rain fell after February 2012. The winter season of 2011 to 2012 was extremely dry in the region with only 2.04 inches of precipitation recorded between October 2011 and

January 2012. Many annual plants that normally begin their growth with the onset of winter rains did not emerge at all (e.g., California jewelflower and San Joaquin woollythreads), nor did these plants respond to the above-average late spring rainfall. Some annual plant species did emerge during the winter season, generally in lesser numbers (e.g., Kern mallow). Other species were less affected by the dry winter season particularly in areas where surface water was artificially available, such as the managed alkali flats at the Kern National Wildlife Refuge. A detention basin southeast of the Stockdale Highway and State Route 43 intersection was partially filled with water during both of the plant surveys and conditions were wet enough for special-status species that occur in alkali flats or streambanks to bloom. The presence/absence of two special-status species, San Joaquin woollythreads and California jewelflower, could not be determined due to inadequate rainfall during winter 2011 to 2012. Both of these species have been reported in dry, disturbed habitats such as roadsides. Surveys for these species will need to be repeated when rainfall conditions are more favorable.

Much of the open space in the biological study area is private property or property belonging to other agencies; therefore, permission was required to do surveys on those properties. Access was granted for all areas with potential to support special-status plant species and for most areas with potential to support the burrowing owl and San Joaquin kit fox. Private property for which access was not granted was surveyed from the boundary of the property with the use of binoculars. The few access limitations are not expected to affect the conclusions presented in this Natural Environment Study.

Standard protocols were used for focused surveys of special-status plants, the burrowing owl, and Swainson's hawk. The focused surveys for the San Joaquin kit fox did not follow the standard methodology for this species; however, the agencies approved the Thomas Roads Improvement Program methodology, as described above in Section 2.5.

Focused surveys for special-status plants are in progress for Stockdale Highway and State Route 43 (spring 2012).

Chapter 3. Results: Environmental Setting

This section provides an evaluation of the environment where the project is located. This evaluation describes the project setting, including the study area, topographical features, soil types, water features, biological resources, and levels of human and/or natural disturbance.

3.1. Description of the Existing Biological and Physical Conditions

3.1.1. Study Area

The biological study area sits roughly between the intersection of State Route 58 and Cottonwood Road, east of State Route 99, and Interstate 5 in the City of Bakersfield and unincorporated Kern County, California (Figure 3). The biological study area includes three alternative alignments, the intersection of Stockdale Highway and State Route 43, and a buffer zone extending 500 feet beyond the proposed highway right-of-way (Figures 4A–4C). The biological study area sits in the western portion of the Metropolitan Bakersfield Habitat Conservation Plan on the U.S. Geological Survey 7.5-minute Tupman, Stevens, Gosford, Oildale, and Lamont quadrangles (Figures 5A–5C).

Several watercourses, shown as blue line streams or canals on the U.S. Geological Survey quadrangles, run through the study area and are shown in Figures 4A–4C:

The Kern River and eight canals cross the biological study area.

The Cross Valley Canal runs parallel to the northern side of the Kern River, and the Carrier Canal runs parallel to the southern side of the Kern River.

The Arvin Edison Canal is located near Coffee Road at the southern end of the Friant Kern Canal.

The Stine Canal crosses the southern end of Alternatives A and B.

The Kern Island Canal crosses the eastern end of the biological study area.

The Calloway Canal crosses State Route 99 in the northern portion of the biological study area.

An unnamed canal is present just east of and parallel to the Friant-Kern Canal.

Land use in the biological study area is mostly urban, with open space north of the Kern River. Land uses in the biological study area are primarily privately owned and include commercial, industrial, residential development, and natural open space; there are public parks along the Kern River (i.e., Kern River Parkway, Kern River Bike Trail, Yokuts Park, and Beach Park) and a few public parks interspersed within developed areas (i.e., Belle Terrace Park, Jastro Park, Quailwood Park, and Wayside Park). Land use at the intersection of Stockdale Highway and State Route 43 is mostly agricultural. See Appendix G for photographs of the biological study area.

3.1.2. Physical Conditions

The biological study area is in the southern portion of the San Joaquin Valley, the southernmost basin of the Great Central Valley of California. Topography in the area is generally flat. The elevation ranges from about 310 to 400 feet above mean sea level (Figure 5A–5C).

The biological study area contains the following soil types: Cajon loamy sand (0 to 2 percent slopes); Cajon sandy loam, overblown (0 to 2 percent slopes); Excelsior sandy loam; Kimberlina – Urban land – Cajon complex (0 to 2 percent slopes); Panoche – Urban land complex (0 to 2 percent slopes); riverwash; urban land; Wasco sandy loam; and Wasco fine sandy loam (Figures 6A–6C). Excelsior sandy loam and riverwash soils are considered to be hydric, which are soils that formed under conditions of saturation, flooding, or ponding (U.S. Department of Agriculture Natural Resource Conservation Service 2009).

3.1.3. Biological Conditions in the Biological Study Area

3.1.3.1. VEGETATION TYPES

Vegetation types in the biological study area include non-native grassland, riparian woodland/Great Valley cottonwood riparian forest, disturbed/ruderal, agriculture, and developed/ornamental; other areas present in the biological study area include waterways and detention basins (Table 1; Figure 7A–7C). This section describes each of the vegetation types and other areas observed in the biological study area.

Table 1
Vegetation Types and Other Areas Within the Biological Study Area

| Vegetation Types and Other Areas | Existing (Acres) |
|---|-----------------------------|
| Non-native Grassland | 405.41 |
| Riparian Woodland/Great Valley Cottonwood Riparian Forest | 39.92 |
| Waterways | 102.89 |
| Detention Basin | 47.32 |
| Disturbed/Ruderal | 151.84 |
| Agriculture | 143.81 |
| Developed/Ornamental | 2,153.23 |
| Total | 3,044.42 |

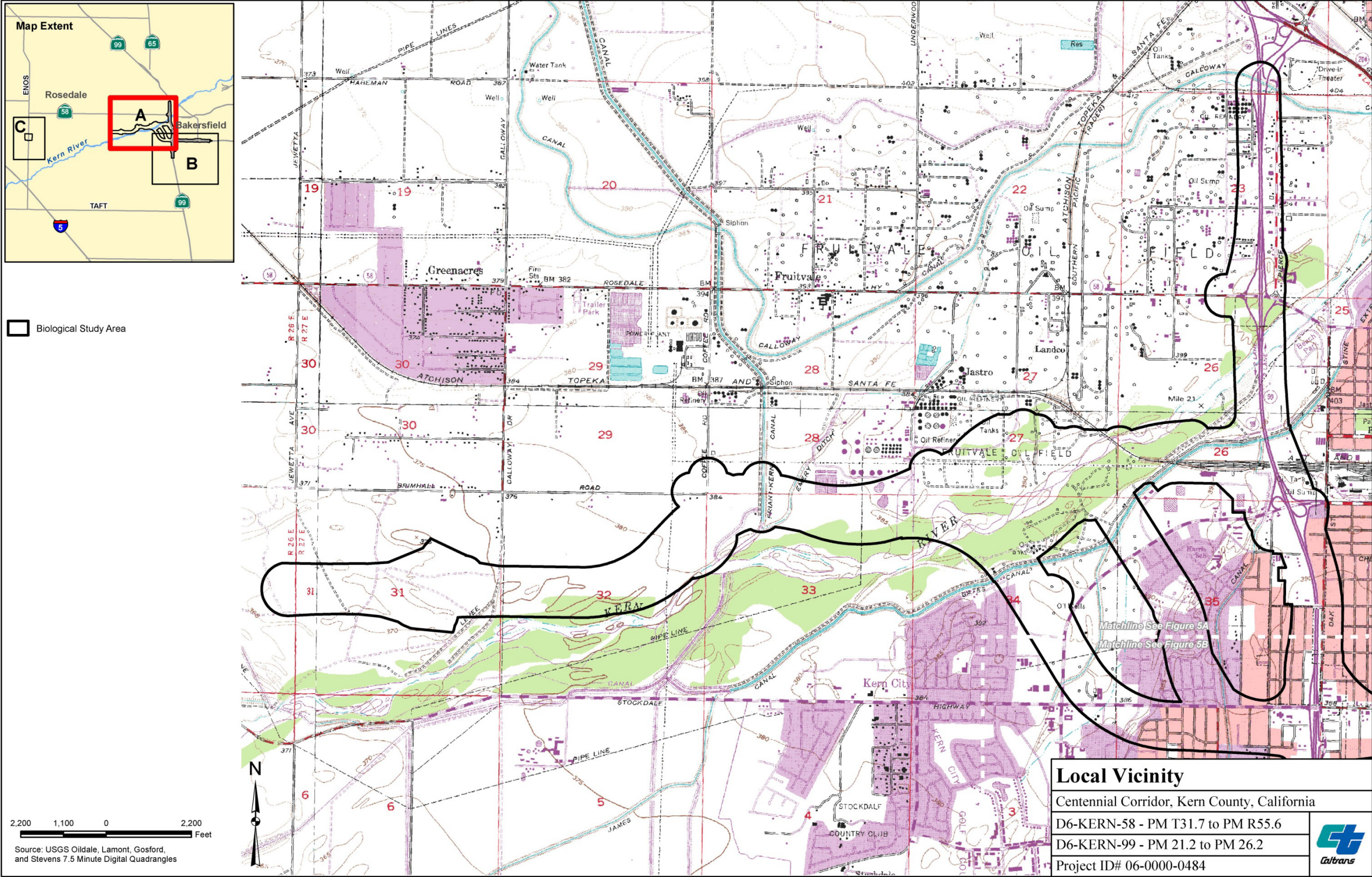
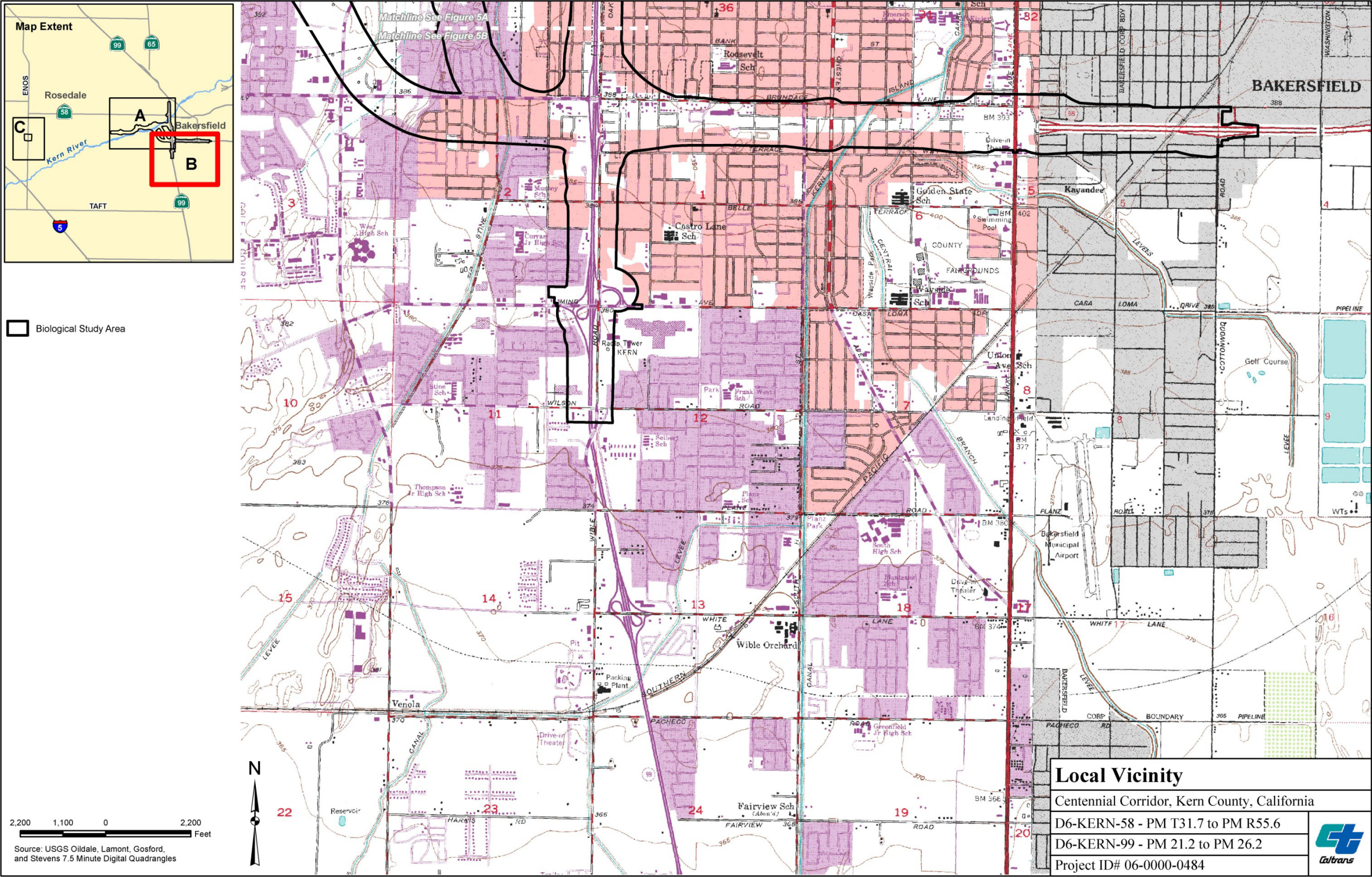


Figure 5A



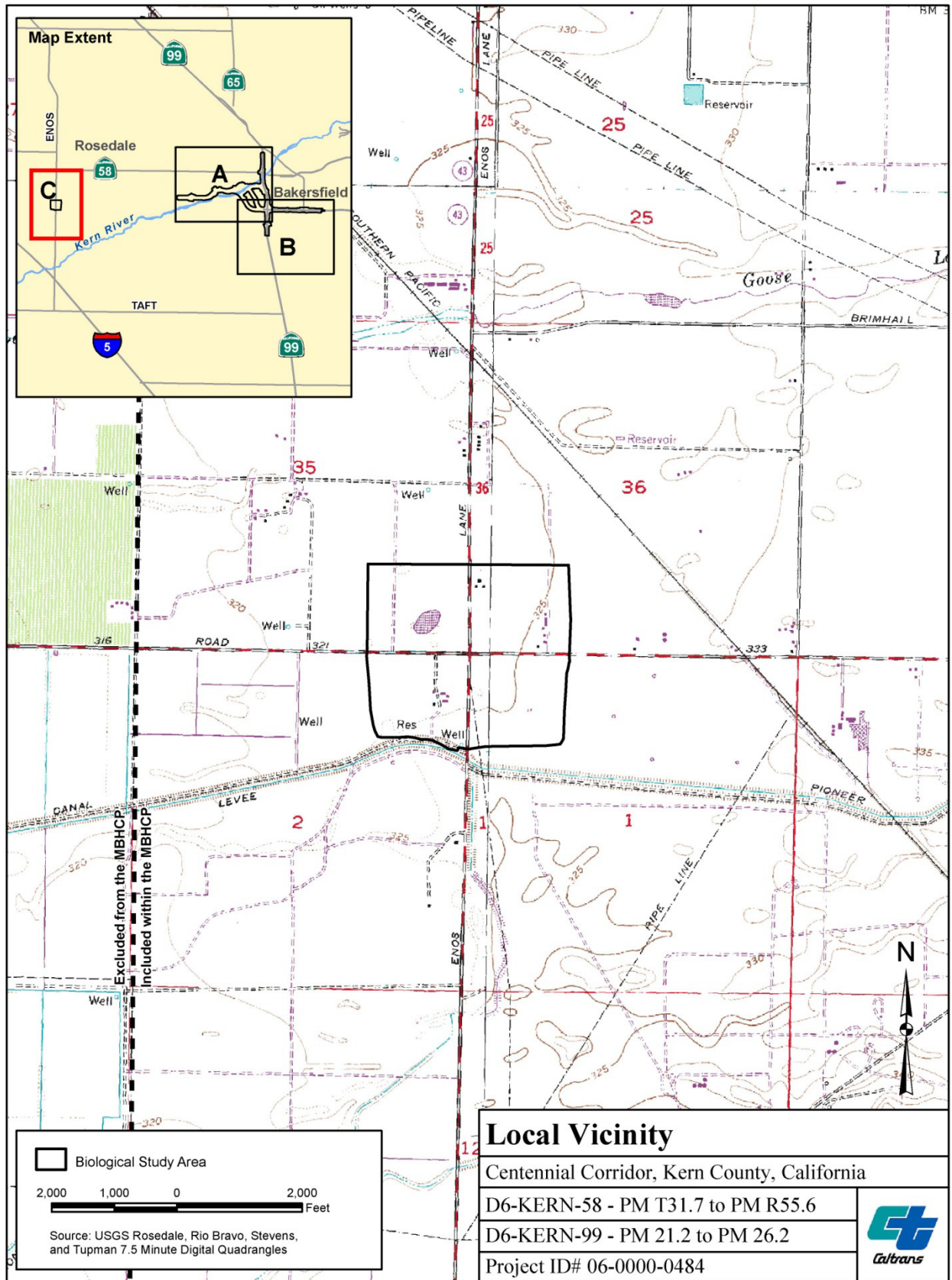


Figure 5C

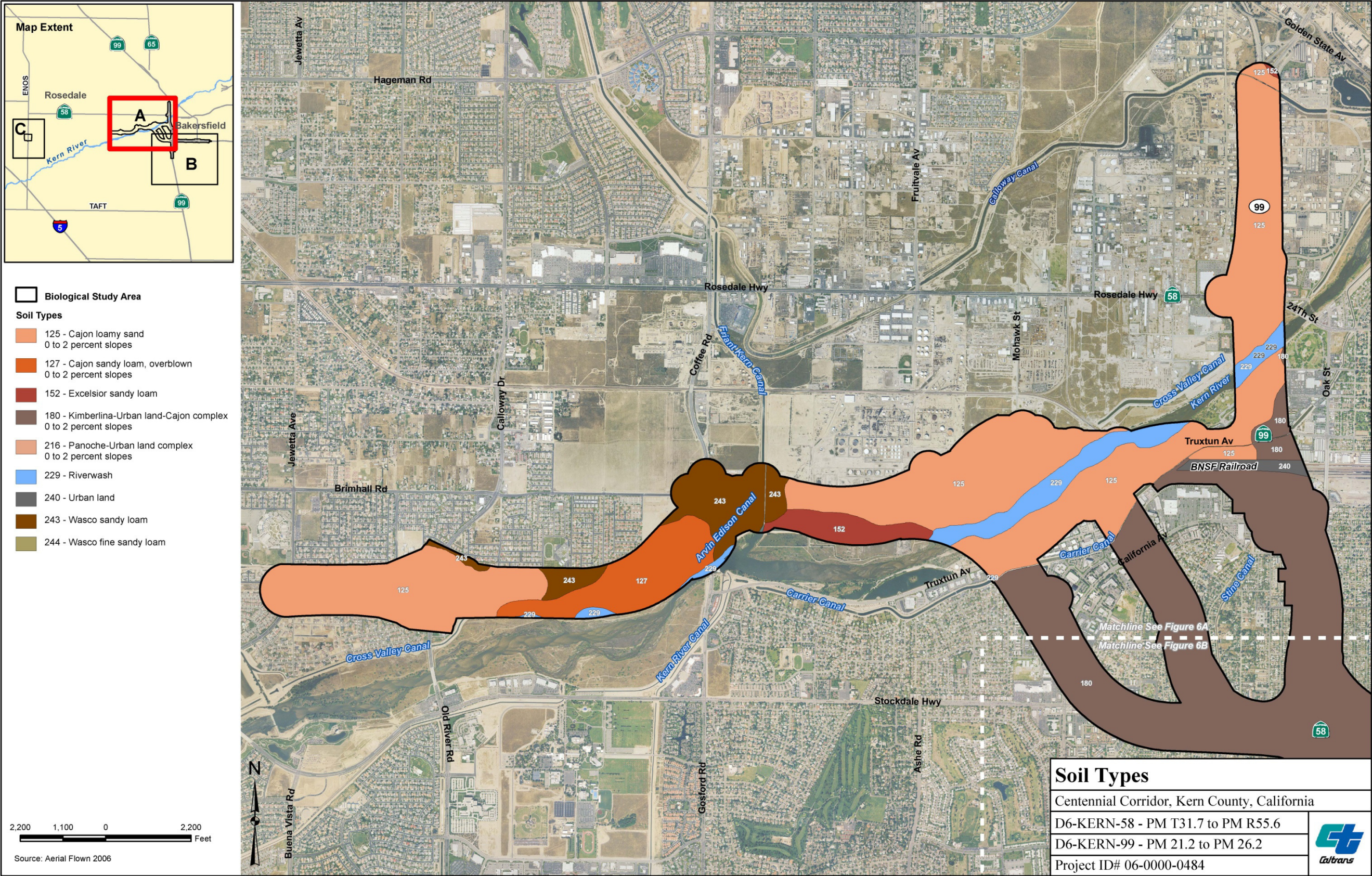


Figure 6A

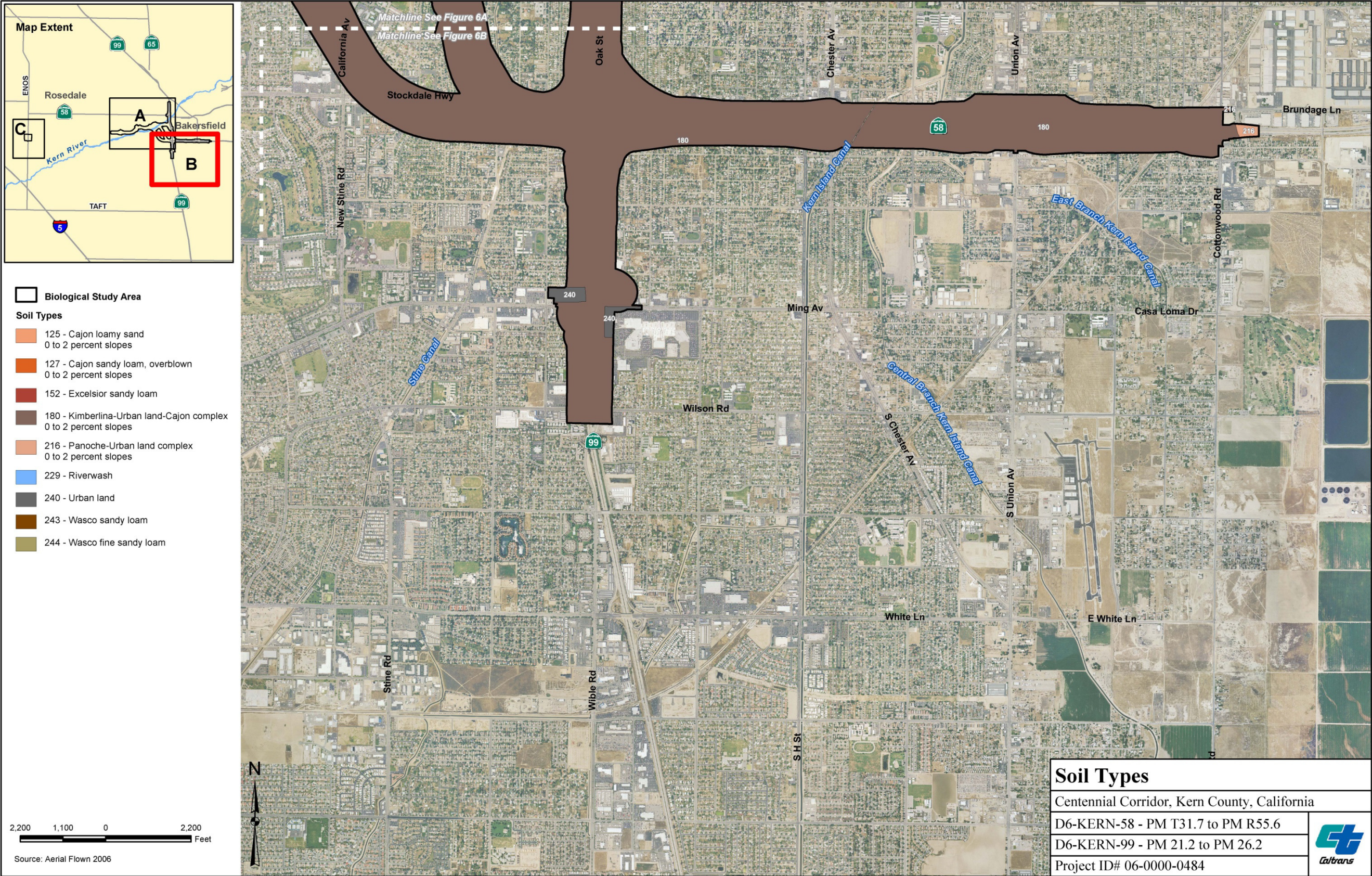


Figure 6B

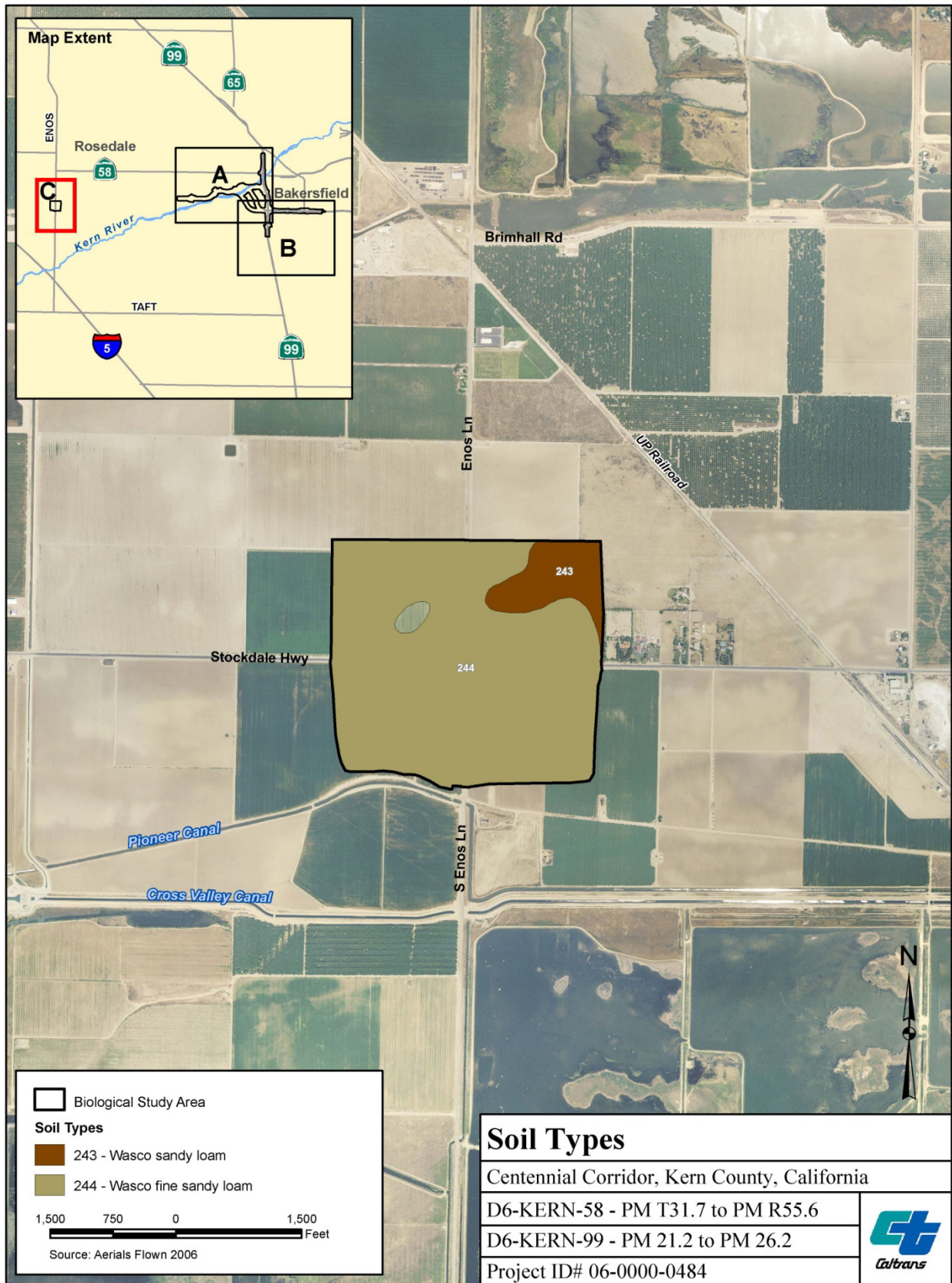


Figure 6C

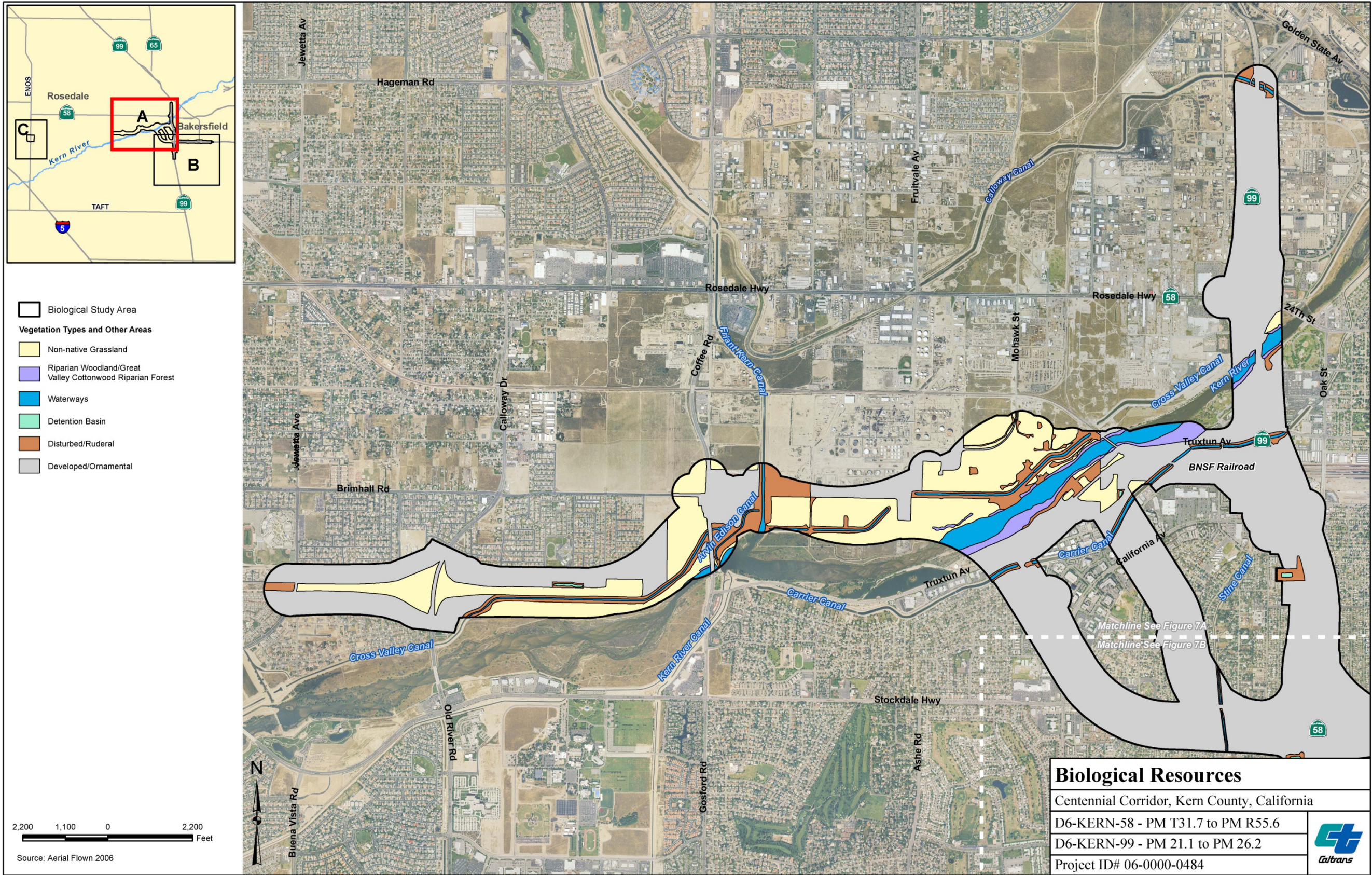
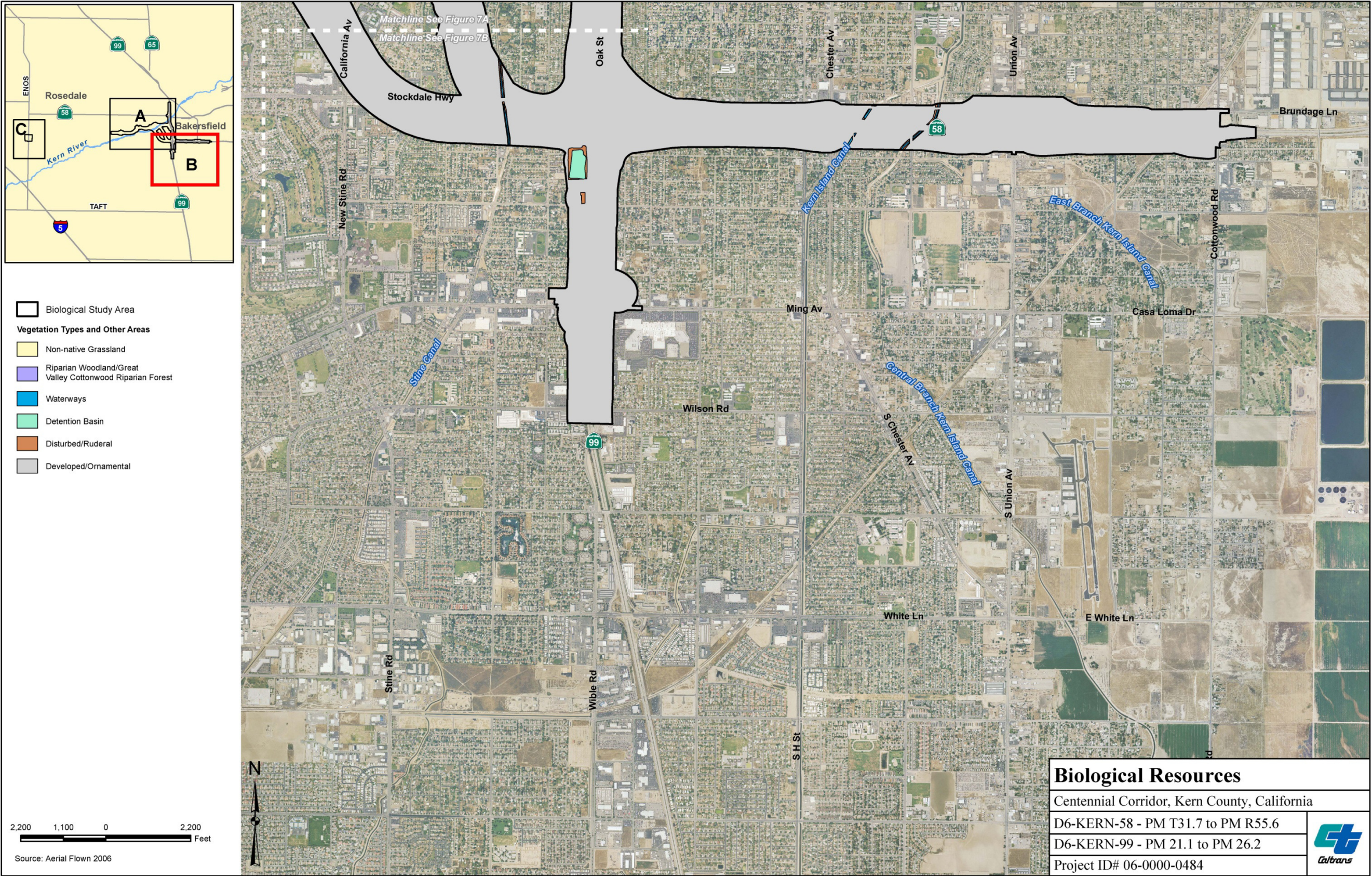


Figure 7A



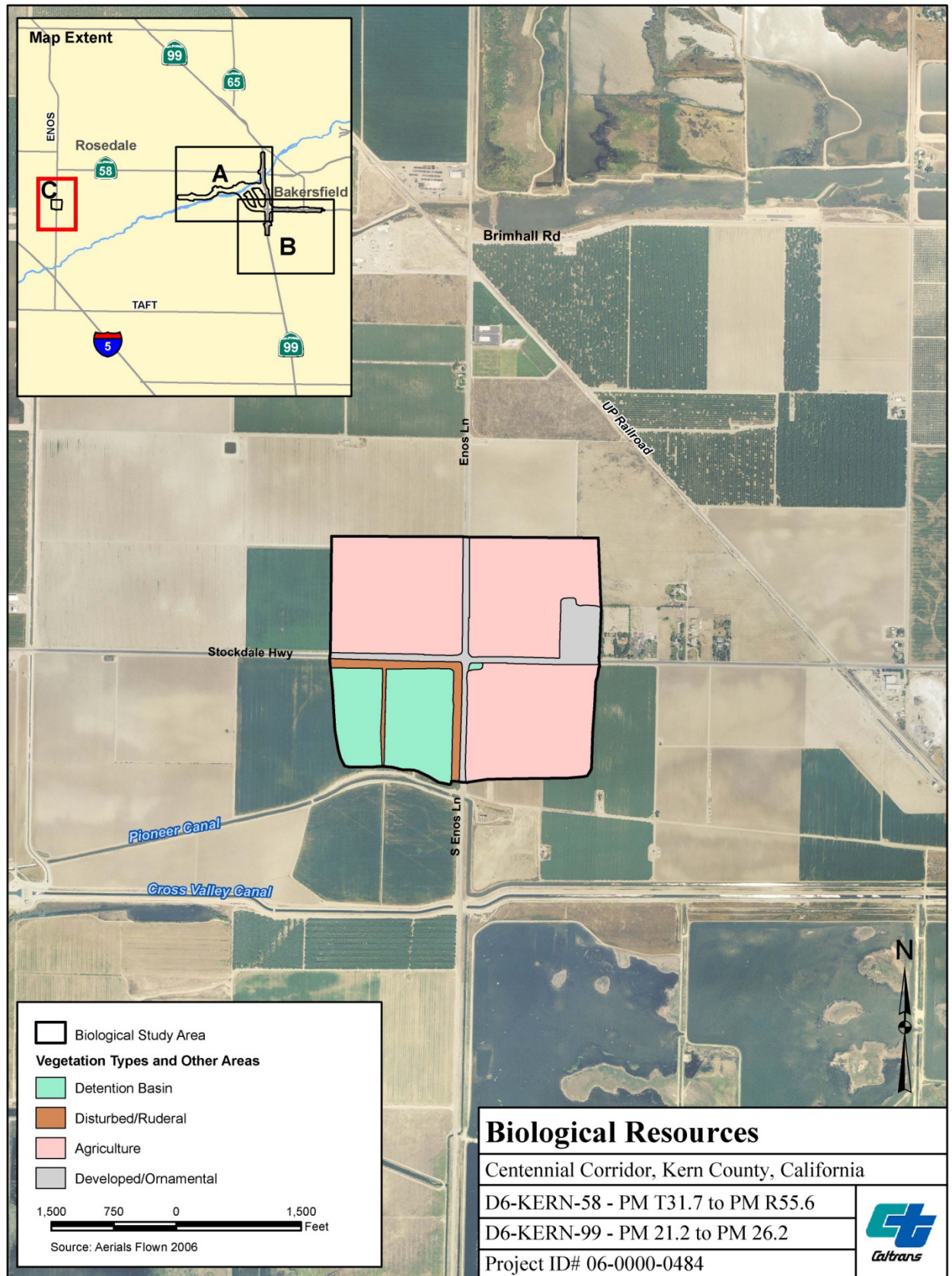


Figure 7C

Non-native Grassland

Non-native grassland is dominated by non-native annual grasses with native and non-native herbs. Dominant species include red brome (*Bromus madritensis* ssp. *rubens*), ripgut grass (*Bromus diandrus*), foxtail barley (*Hordeum murinum* var. *jeporinum*), Arizona chess (*Bromus arizonicus*), Mediterranean schismus (*Schismus barbatus*), foxtail fescue (*Vulpia myuros*), telegraph weed (*Heterotheca grandiflora*), long-beaked filaree (*Erodium botrys*), red-stemmed filaree (*Erodium cicutarium*), and common fiddleneck (*Amsinckia menziesii* var. *intermedia*). Non-native grassland areas occur mostly in the western portion of the biological study area and sometimes include disturbed areas with vegetation consisting of the species listed above. These areas match Sawyer and Keeler-Wolf's description of California annual grassland (1995) and Holland's description of non-native grassland (1986).

Riparian Woodland/Great Valley Cottonwood Riparian Forest

Riparian woodland/Great Valley cottonwood riparian forest occurs along the banks of the Kern River in the biological study area. This vegetation type consists of an overstory of willows (*Salix* spp.) with occasional Fremont cottonwood (*Populus fremontii* ssp. *fremontii*). The understory consists of mule fat (*Baccharis salicifolia*), salt grass (*Distichlis spicata*), curly dock (*Rumex crispus*), and non-native annual grasses. This vegetation type matches Holland's (1986) description of southern willow scrub and Sawyer and Keeler-Wolf's (1995) mixed willow series (in part).

Waterways

Much of the Kern River stream channel consists of an open sandy wash that was either very sparsely vegetated or essentially devoid of vegetation at the time of the survey. Some scattered forb species were present in the open areas of the wash, including miniature lupine (*Lupinus bicolor*), bajada lupine (*Lupinus concinnus*), stigose lotus (*Lotus strigosus*), and lowland cudweed (*Gnaphalium palustre*).

Numerous constructed water canals are present throughout the biological study area. Most of these canals are part of the Central Valley Project, a federal water project administered by the Bureau of Reclamation to provide long-term water supply to the San Joaquin Valley. The Cross Valley Canal is an unlined (soft-bottom) channel bordered by wide dirt access roads; open water was present in most of this canal during the surveys. The Friant-Kern Canal, Arvin-Edison Canal, and the unnamed canal are concrete-lined channels that cross the biological study area just east of Coffee Road; open water was also present in these canals during the surveys. Other canals in the biological study area (the Calloway Canal, Carrier Canal, Stine Canal,

and Kern Island Canal) are unlined. These canals appear to be regularly maintained by disking or mowing. A sparse cover of non-native grasses (brome grasses [*Bromus* spp.]) and mustards [*Brassica* spp. and *Descurainia* spp.]) may be present in these canals when water is not moving through them.

Detention Basin

Three small infiltration basins constructed as flood-control or water catchment basins associated with residential developments or other urban infrastructures are mapped as detention basins. These small isolated basins were typically vegetated with riparian or wetland species such as willows, mule fat, and cattails (*Typha* spp.) that are regularly disturbed by maintenance activities (such as mowing). A detention basin is also present southwest of the intersection of Stockdale Highway and State Route 43; this basin contained open water at the time of vegetation mapping.

Disturbed/Ruderal

Disturbed/ruderal areas consist of recently graded or disked areas, dirt roads and trails, active oil fields, and cleared roadsides. These areas are generally devoid of vegetation or have a sparse cover of ornamental or weedy species. These areas are scattered throughout the biological study area.

Agriculture

Agricultural areas lie next to the intersection of Stockdale Highway and State Route 43. They consist of actively cultivated fields.

Developed/Ornamental

Developed/ornamental areas consist of residential and commercial developments, paved roadways, compacted road shoulders, railroad tracks, and ornamental plantings including maintained turf grass. Common plant species observed in these areas include oleander (*Nerium oleander*), American sweet gum (*Liquidambar styraciflua*), olive (*Olea europaea*), and Mexican fan palm (*Washingtonia robusta*). Developed areas and ornamental plants are found throughout the biological study area, and make up the primary vegetation type in the eastern portion of the biological study area.

3.1.3.2. COMMON ANIMAL SPECIES

Most of the biological study area is highly urbanized, with development becoming less dense toward the west. Some urban-tolerant species can use ornamental vegetation or unvegetated areas within urban areas; however, most wildlife species in the biological study area would generally be found along the Kern River or in undeveloped areas interspersed with or on the edge of development, such as the

canals, oil refinery lands, and vacant lots. The following discusses wildlife species that were observed in the open space areas within the biological study area.

Amphibians

No amphibian species were observed during the surveys.

Reptiles

One reptile species—the side-blotched lizard (*Uta stansburiana*)—was observed during the surveys.

Birds

Many resident bird species were observed in the biological study area during the surveys including, but not limited to, mallard (*Anas platyrhynchos*), killdeer (*Charadrius vociferous*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), Anna’s hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), western scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), bushtit (*Psaltirparus minimus*), house wren (*Troglodytes aedon*), American robin (*Turdus migratorius*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), California towhee (*Pipilo crissalis*), lark sparrow (*Chondestes grammacus*), savannah sparrow (*Passerculus sandwichensis*), song sparrow (*Melospiza melodia*), house finch (*Carpodacus mexicanus*), and house sparrow (*Passer domesticus*).

Many migrant bird species were observed in the biological study area during surveys including, but not limited to, ash-throated flycatcher (*Myiarchus cinerascens*), western kingbird (*Tyrannus verticalis*), cliff swallow (*Petrochelidon pyrrhonota*), barn swallow (*Hirundo rustica*), orange-crowned warbler (*Vermivora celata*), yellow warbler (*Dendroica petechia*), Wilson’s warbler (*Wilsonia pusilla*), and white-crowned sparrow (*Zonotrichia leucophrys*).

Raptor species observed in the biological study area include turkey vulture (*Cathartes aura*), osprey (*Pandion haliaetus*), sharp-shinned hawk (*Accipiter striatus*), Cooper’s hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), merlin (*Falco columbarius*), and burrowing owl (*Athene cunicularia*). These species are expected to forage in the biological study area, and the Cooper’s hawk, red-shouldered hawk, red-tailed hawk, and American kestrel may nest in the biological study area.

Mammals

Mammals observed in the biological study area include the desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), and red fox (*Vulpes vulpes*).

Bats occur throughout most of California and may use any portion of the biological study area as foraging habitat. Most of the bats that could potentially occur in the biological study area are inactive during the winter and either hibernate or migrate, depending on the species. Cavities in trees and human-made structures (bridges and culverts) in the vicinity may provide potential roosting opportunities for several bat species. Mexican free-tailed bats (*Tadarida brasiliensis*) were observed under the northbound Coffee Road Bridge over the Cross Valley Canal during pre-construction surveys for the Westside Parkway (AECOM 2009).

3.1.3.3. MIGRATION CORRIDORS

The Kern River is a regional wildlife corridor in the biological study area and provides for wildlife movement through the Metropolitan Bakersfield Habitat Conservation Plan area to connect areas of open space between the northeastern reserve, the southwestern reserve, and the Kern Water Bank Habitat Conservation Plan reserve. The canals in the biological study area are also used for wildlife movement, especially in the highly urbanized portions of the biological study area. A study of kit fox movement (City of Bakersfield and Caltrans 2007) identified the Carrier Canal and Friant Kern Canal as movement corridors for San Joaquin kit fox.

3.1.3.4. INVASIVE SPECIES

Although non-native species (non-native grasses and ornamental species) occur throughout the biological study area, invasive species are not prevalent within the biological study area. One listed noxious weed species from the California Department of Food and Agriculture Noxious Weed List (2010) and five listed invasive weed species from the California Invasive Plant Council List (2006) were identified in the biological study area: wild turnip (*Brassica tournefortii*), foxtail chess (*Bromus madritensis* ssp. *rubens*), cheat grass (*Bromus tectorum*), halogeton (*Halogeton glomeratus*), English ivy (*Hedera helix*), and Mediterranean tamarisk (*Tamrix ramosissima*). No species on the Federal Weed List (U.S. Department of Agriculture Natural Resource Conservation Service 2010) were identified within the biological study area.

3.2. Regional Species and Habitats of Concern

Tables 2 and 3 include a list of all special-status species and habitats of concern observed, reported, or found to have the potential to occur in the region. These resources include plant and wildlife species that have been afforded special-status and/or other recognition by federal and state resource agencies and private conservation organizations. In addition, special-status biological resources include vegetation types and habitats that are either unique, are of relatively limited distribution in the region, or are of particularly high wildlife value. Species with potential habitat present within the biological study area are discussed further in Chapter 4.

3.2.1. Special-Status Plants

Thirty-two special-status plant species are known to occur or have potential to occur in the project region (the 10-mile radius surrounding the biological study area) (see Table 2). Table 2 was compiled from documents reviewed during the literature search, including those identified by the California Native Plant Society (2009, 2011, 2015; Appendix C); the California Natural Diversity Database (California Department of Fish and Game 2009, 2011, California Department of Fish and Wildlife 2015; Appendix C); the U.S. Fish and Wildlife Service species list (Appendix C); the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (U.S. Fish and Wildlife Service 1998); and species that may occur because suitable habitat is present within the biological study area. Table 2 summarizes the listing status, habitat preferences, known or potential occurrence, and supporting rationale for each of the 32 species. Figure 8 shows the locations of any special-status plant species observed in the biological study area.

No critical habitat for special-status plant species is present in the biological study area.

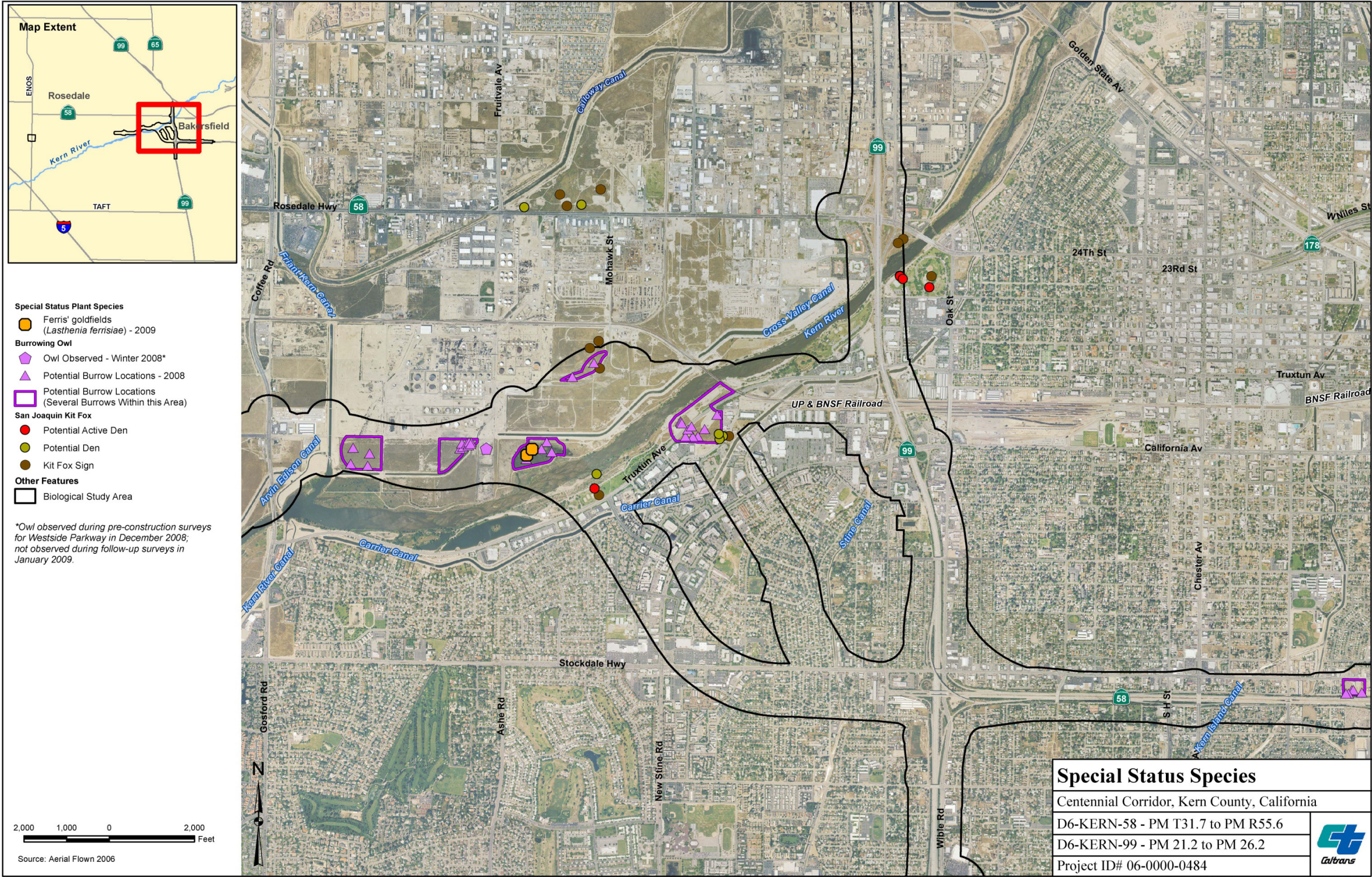


Figure 8

Table 2
Special-Status Plant Species Known to
Occur in the Project Vicinity

| Scientific Name | Common Name | Status | | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale (Potential for Species to Occur) |
|---|-----------------------|--------|------|------|---|--|--------------------------------------|--|
| | | USFWS | CDFW | CNPS | | Segment 1 | Stockdale Highway/ State Route 43 | |
| <i>Astragalus hornii</i> var. <i>hornii</i> | Horn's milk-vetch | — | — | 1B.1 | Meadows and seeps; playas/lake margins (alkaline). | HP/A | HP/A | Suitable habitat present along unlined canals, detention basins, and wet places in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Atriplex cordulata</i> | heartscale | — | — | 1B.2 | Vernal pools; saltbush scrub; meadows and seeps (saline or alkaline); valley and foothill grassland. | HP/A | HP/A | Suitable habitat present along unlined canals, detention basins, and wet places in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Atriplex coronata</i> var. <i>vallicola</i> | Lost Hills crownscale | — | — | 1B.2 | Saltbush scrub; valley and foothill grassland; vernal pools; alkali sinks. | HP/A | HP/A | Marginally suitable habitat present along unlined canals, detention basins, and wet places in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Atriplex depressa</i> | brittlescale | — | — | 1B.2 | Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools; alkaline or clay areas. | HP/A | HP/A | Suitable habitat present along unlined canals, detention basins, and wet places in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |

Table 2 (Continued)
Special-Status Plant Species Known to
Occur in the Project Vicinity

| Scientific Name | Common Name | Status | | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale (Potential for Species to Occur) |
|--|------------------------|--------|------|------|---|--|--------------------------------------|--|
| | | USFWS | CDFW | CNPS | | Segment 1 | Stockdale Highway/ State Route 43 | |
| <i>Atriplex minuscula</i> ^b | lesser saltscale | — | — | 1B.1 | Saltbush scrub; grasslands; often in association with slough systems and river floodplains (sandy, alkaline). | HP/A | HP/A | Suitable habitat present along unlined canals, detention basins, and wet places in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Atriplex tularensis</i> | Bakersfield smallscale | — | SE | 1A | Alkali sinks; saltbush scrub. | HP/A | HP/A | Marginally suitable habitat present along unlined canals, detention basins, and wet places in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Calochortus striatus</i> | alkali mariposa lily | — | — | 1B.2 | Alkali meadows; ephemeral washes; vernal moist depressions; seeps. | HP/A | HP/A | Marginally suitable habitat present along unlined canals, detention basins, and wet places in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |

Table 2 (Continued)
Special-Status Plant Species Known to
Occur in the Project Vicinity

| Scientific Name | Common Name | Status | | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale (Potential for Species to Occur) |
|--|------------------------|--------|------|------|--|--|--------------------------------------|---|
| | | USFWS | CDFW | CNPS | | Segment 1 | Stockdale Highway/ State Route 43 | |
| <i>Caulanthus californicus</i> | California jewelflower | FE | SE | 1B.1 | Saltbush scrub; pinyon and juniper woodland; valley and foothill grassland (sandy). | HP/A | HP | Marginally suitable habitat present along unlined canals, detention basins, and non-native grassland; not expected to occur because not observed during focused surveys along Segment 1; 2012 surveys inconclusive at Stockdale Highway and State Route 43 due to lack of rainfall. |
| <i>Chloropyron molle</i> ssp. <i>hispidum</i> [<i>Cordylanthus mollis</i> ssp. <i>hispidus</i>] | hispid bird's beak | — | — | 1B.1 | Meadows and seeps; playas; valley and foothill grassland (alkaline). | HP/A | HP/A | Marginally suitable habitat present along unlined canals, detention basins, or wet places in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Cirsium crassicaule</i> | slough thistle | — | — | 1B.1 | Saltbush scrub; marshes and swamps; (sloughs); riparian scrub. | HP/A | HP/A | Suitable habitat present along unlined canals, detention basins, and riparian woodland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Clarkia tembloriensis</i> ssp. <i>calientensis</i> | Vasek's clarkia | — | — | 1B.1 | Valley and foothill grassland; elevations higher than 1,000 feet above mean sea level. | A | A | Outside reported elevational range; no potential to occur; not observed during focused surveys along Segment 1. |

Table 2 (Continued)
Special-Status Plant Species Known to
Occur in the Project Vicinity

| Scientific Name | Common Name | Status | | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale (Potential for Species to Occur) |
|--|--------------------|----------|------|------|--|--|--------------------------------------|---|
| | | USFWS | CDFW | CNPS | | Segment 1 | Stockdale Highway/ State Route 43 | |
| <i>Delphinium recurvatum</i> | recurved larkspur | – | – | 1B.2 | Saltbush scrub; cismontane woodland; valley and foothill grassland (alkaline). | HP/A | HP/A | Suitable habitat present in unlined canals, detention basins, and wet places in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Eremalche kernensis</i> [<i>E. parryi</i> ssp. <i>kernensis</i>] ^c | Kern mallow | FE | – | 1B.1 | Saltbush scrub; valley and foothill grassland. | HP/A | HP/A | Marginally suitable habitat present along unlined canals and detention basins, and non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Eriastrum hooveri</i> | Hoover's eriastrum | Delisted | – | 4.2 | Saltbush scrub; pinyon-juniper woodland; valley and foothill grassland. | HP/A | HP/A | Suitable habitat present along unlined canals and detention basins, and non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Eschscholzia lemmonii</i> ssp. <i>kernensis</i> | Tejon poppy | – | – | 1B.1 | Saltbush scrub; valley and foothill grassland. | HP/A | HP/A | Marginally suitable habitat present along unlined canals and detention basins, and non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Fritillaria striata</i> | striped adobe-lily | – | ST | 1B.1 | Cismontane woodland; valley and foothill grassland (adobe clay soil). | A | A | No suitable habitat (soils); not expected to occur; not observed during focused surveys along Segment 1. |

Table 2 (Continued)
Special-Status Plant Species Known to
Occur in the Project Vicinity

| Scientific Name | Common Name | Status | | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale (Potential for Species to Occur) |
|---|----------------------|--------|------|------|---|--|--------------------------------------|--|
| | | USFWS | CDFW | CNPS | | Segment 1 | Stockdale Highway/ State Route 43 | |
| <i>Imperata brevifolia</i> | California satintail | – | – | 2B.1 | Chaparral; coastal scrub; Mojavean desert scrub; meadows and seeps (often alkali); riparian scrub. | HP/A | HP/A | Suitable habitat present along unlined canals, detention basins, and riparian woodland/Great Valley cottonwood riparian forest; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Lasthenia ferrisiae</i> | Ferris' goldfields | – | – | 4.2 | Vernal pools, wet saline flats | HP/P | HP/A | Marginally suitable habitat present along unlined canals, detention basins, and wet places in non-native grassland; observed during focused surveys in 2009 (BonTerra Consulting 2009b; Figure 8). |
| <i>Lasthenia glabrata</i> ssp. <i>coulteri</i> | Coulter's goldfields | – | – | 1B.1 | Vernal pools, alkali flats | HP/A | HP/A | Marginally suitable habitat present along unlined canals, detention basins, and wet places in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Layia heterotricha</i> | pale-yellow layia | – | – | 1B.1 | Cismontane woodland, pinyon and juniper woodland, valley and foothill grassland/alkaline or clay soils; elevations between 650 and 5,900 feet above mean sea level. | HP/A | A | Marginally suitable habitat present in non-native grassland; below known elevational range; not expected to occur because not observed during focused surveys along Segment 1. |

Table 2 (Continued)
Special-Status Plant Species Known to
Occur in the Project Vicinity

| Scientific Name | Common Name | Status | | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale (Potential for Species to Occur) |
|--|----------------------------|--------|------|------|--|--|--------------------------------------|---|
| | | USFWS | CDFW | CNPS | | Segment 1 | Stockdale Highway/ State Route 43 | |
| <i>Layia leucopappa</i> | Comanche Point layia | — | — | 1B.1 | Open slopes in heavy soil; elevations between 490 and 1,150 feet above mean sea level. | A | A | Not suitable habitat (soils); outside elevational range; not expected to occur; not observed during focused surveys along Segment 1. |
| <i>Mimulus pictus</i> | Calico monkeyflower | — | — | 1B.2 | Bare, sunny areas around shrubs; rock outcrops on granitic soils. | A | A | No suitable habitat (soils); not expected to occur; not observed during focused surveys along Segment 1. |
| <i>Monardella linoides</i> ssp. <i>oblonga</i> | Tehachapi monardella | — | — | 1B.3 | Desert scrub, pinyon/juniper woodland, open conifer forest, subalpine; elevations between 2,950 and 7,545 feet above mean sea level. | A | A | No suitable habitat; outside elevational range; not expected to occur; not observed during focused surveys along Segment 1. |
| <i>Monolopia [Lembertia] congdonii</i> | San Joaquin woollythreads | FE | — | 1B.2 | Saltbush scrub; valley and foothill grassland (sandy). | HP/A | HP | Suitable habitat present in unlined canals, detention basins, and wet places in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1; 2012 surveys inconclusive at Stockdale Highway and State Route 43 due to lack of rainfall. |
| <i>Navarretia setiloba</i> | Piute Mountains navarretia | — | — | 1B.1 | Depressions in clay or gravelly loam; elevations between 1,640 and 6,890 feet above mean sea level. | A | A | Outside elevational range; not expected to occur; not observed during focused surveys along Segment 1. |

Table 2 (Continued)
Special-Status Plant Species Known to
Occur in the Project Vicinity

| Scientific Name | Common Name | Status | | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale (Potential for Species to Occur) |
|---|----------------------------|--------|------|------|---|--|--------------------------------------|---|
| | | USFWS | CDFW | CNPS | | Segment 1 | Stockdale Highway/ State Route 43 | |
| <i>Opuntia basilaris</i> var. <i>treleasei</i> | Bakersfield cactus | FE | SE | 1B.1 | Saltbush scrub; cismontane woodland; valley and foothill grassland (sandy or gravelly). | HP/A | A | Marginally suitable habitat present in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Pseudobahia peirsonii</i> | San Joaquin adobe sunburst | FT | SE | 1B.1 | Valley and foothill grassland (adobe clay soil). | A | A | No suitable habitat (soils); not expected to occur; not observed during focused surveys along Segment 1. |
| <i>Pterygoneurum californicum</i> | California chalk-moss | — | — | 1B.1 | Saltbush scrub; valley and foothill grassland (alkali). | HP/A | A | Marginally suitable habitat present in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| <i>Stylocline citroleum</i> | oil neststraw | — | — | 1B.1 | Saltbush scrub; mesquite scrub. | A | A | No suitable habitat; not expected to occur; not observed during focused surveys along Segment 1. |
| <i>Stylocline masonii</i> | Mason's neststraw | — | — | 1B.1 | Saltbush scrub; pinyon and juniper woodland/sandy soils. | A | A | No suitable habitat; not expected to occur; not observed during focused surveys along Segment 1. |
| <i>Tortula californica</i> | California screw-moss | — | — | 1B.2 | Sandy soil. | HP/A | A | Suitable habitat present in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |

Table 2 (Continued)
Special-Status Plant Species Known to
Occur in the Project Vicinity

| Scientific Name | Common Name | Status | | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale (Potential for Species to Occur) |
|--|-----------------------|--------|------|------|--|--|--------------------------------------|--|
| | | USFWS | CDFW | CNPS | | Segment 1 | Stockdale Highway/ State Route 43 | |
| <i>Trichostema ovatum</i> | San Joaquin bluecurls | — | — | 4.2 | Saltbush scrub; valley and foothill grassland. | HP/A | A | Suitable habitat present in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1. |
| STATUS DESIGNATIONS Federal Designations FE Listed by the federal government as an endangered species FT Listed by the federal government as a threatened species State Designations SE Listed as endangered by the State of California ST Listed as threatened by the State of California California Native Plant Society 1B Plants rare, threatened, or endangered in California and elsewhere 2B Plants rare, threatened, or endangered in California and elsewhere 4 Plants that are limited in distribution in California California Native Plant Society Threat Code Extensions None Plants lacking any threat information .1 Seriously endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat) .2 Fairly endangered in California (20-80% of occurrences threatened) .3 Not very endangered in California (less than 20% of occurrences threatened or no current threats known) ^a Potential for species is based on the results of focused surveys for special status plant species conducted in 2008 and 2009 for Alternatives A, B, and C (BonTerra Consulting 2009a, 2009b). Focused surveys for Stockdale Highway and State Route 43 were conducted only in spring/summer 2012. ^b <i>Atriplex minuscula</i> formerly <i>A. minuscula</i> and <i>A. subtilis</i> (CNPS List 1B.2 species). Now considered to be one species (Jepson Flora Project 2007). ^c A new species treatment was recently published for Kern mallow in the 2 nd Edition of the Jepson Manual (The Jepson Online Interchange California Floristics available online at http://ucjeps.berkeley.edu/interchange/). Some records previously identified as Parry's mallow (<i>E. parryi</i>) have been determined to be Kern mallow based on the new key, and the range of Kern mallow has been found to extend beyond the area shown in the Recovery Plan for Upland Species (Cypher 2002). All vouchers of <i>Eremalche</i> previously collected should be re-examined and the identification of this species should be re-verified in the field. Sources: Jepson Flora Project 2008; BonTerra Consulting 2009a, 2009b; CNPS 2008; Jepson Flora Project 2007; Bakersfield PWD and FHWA 2005; Caltrans et al. 1998; USFWS 1998; Twisselmann and Moe 1995; Hickman 1993; and Munz 1974. | | | | | | | | |

3.3. Special-Status Wildlife

Forty-one special-status wildlife species are known to occur in the project region (the 10-mile radius surrounding the biological study area). They are listed in Table 3. The table was compiled from documents reviewed during the literature search, including those identified by the California Natural Diversity Database (California Department of Fish and Game 2009, 2011, California Department of Fish and Wildlife 2015; Appendix C); the project's U.S. Fish and Wildlife Service Species List (2009, 2011A, 2015A; Appendix C); and species that may occur because suitable habitat is present in the biological study area. Table 3 summarizes the listing status, habitat preferences, known or potential occurrence, and supporting rationale for each of the 41 species. Figure 8 shows the locations of any special-status wildlife species observed in the biological study area.

No critical habitat for special-status wildlife is present in the biological study area.

Table 3
Special-Status Wildlife Species Known to
Occur in the Project Region

| Scientific Name | Common Name | Status | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale* (Potential for Species to Occur) |
|--|-----------------------------------|--------|------|---|--|--------------------------------------|---|
| | | USFWS | CDFW | | Segment 1 | Stockdale Highway/ State Route 43 | |
| Invertebrates | | | | | | | |
| <i>Branchinecta conservatio</i> | conservancy fairy shrimp | FE | – | Ephemeral freshwater habitats, such as vernal pools and swales; prefers large pools. | A | A | Not expected to occur; outside known range; no suitable habitat; not observed during general surveys. |
| <i>Branchinecta longiantenna</i> | longhorn fairy shrimp | FE | – | Ephemeral freshwater habitats, such as vernal pools and swales; prefers pools with very low conductivity, total dissolved solids, and alkalinity. | A | A | Not expected to occur; no suitable habitat (soils are alkaline); not observed during general surveys. |
| <i>Branchinecta lynchi</i> | vernal pool fairy shrimp | FT | – | Ephemeral freshwater habitats, such as vernal pools and swales; prefers pools with very low conductivity, total dissolved solids, and alkalinity. | A | A | Not expected to occur; no suitable habitat; not observed during general surveys. |
| <i>Desmocerus californicus dimorphus</i> | valley elderberry longhorn beetle | FT | – | Associated with blue elderberry. | A** | A | Not expected to occur; no suitable habitat (elderberry) observed; not observed during general surveys. |
| Fish | | | | | | | |
| <i>Hypomesus transpacificus</i> | delta smelt | FT | SE | Sacramento-San Joaquin Delta. | A | A | Not expected to occur; outside known range; not observed during general surveys. |
| Amphibians | | | | | | | |
| <i>Spea hammondi</i> | western spadefoot | – | SSC | Washes, floodplains, alluvial fans, alkali flats; breeds in quiet streams, vernal pools, temporary ponds. | HP | HP | Limited potential to occur; marginally suitable habitat along Kern River, unlined canals, and in detention basins; not observed during general surveys. |
| <i>Rana draytonii</i> | California red-legged frog | FT | SSC | Variety of aquatic habitats in forests, woodlands, grasslands, and streamsides with deep, still, or slow-moving water; requires perennial water. | A | A | Not expected to occur; no suitable habitat; not observed during general surveys. |
| <i>Rana boylei</i> | foothill yellow-legged frog | – | SSC | Streams or rivers in woodlands, chaparral, and forests; requires perennial water. | A | A | Not expected to occur; no suitable habitat; not observed during general surveys. |

Table 3 (Continued)
Special-Status Wildlife Species Known to
Occur in the Project Region

| Scientific Name | Common Name | Status | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale* (Potential for Species to Occur) |
|--|----------------------------|--------|------------------|--|--|--------------------------------------|--|
| | | USFWS | CDFW | | Segment 1 | Stockdale Highway/ State Route 43 | |
| Reptiles | | | | | | | |
| <i>Emys marmorata</i> [<i>Actinemys marmorata pallida</i>] | western pond turtle | – | SSC | Freshwater rivers, streams, lakes, ponds, vernal pools, and seasonal wetlands with basking sites. | HP | HP | Limited potential to occur; marginally suitable habitat along Kern River, unlined canals, and in detention basins; not observed during general surveys. |
| <i>Gambelia sila</i> | blunt-nosed leopard lizard | FE | SE/FP | Semiarid grasslands, alkali flats, washes, saltbush scrub, valley sink scrub. | A | A | Not expected to occur; no suitable habitat (AECOM 2009; Appendix H); not observed during general surveys. |
| <i>Phrynosoma blainvillii</i> [<i>Phrynosoma coronatum blainvillii</i>] | coast horned lizard | – | SSC | Scrubland, grassland, coniferous forests, broadleaf woodlands. | HP | A | Limited potential to occur; limited suitable habitat; not observed during general surveys. |
| <i>Anniella pulchra pulchra</i> | silvery legless lizard | – | SSC | Loose, sandy soils in chaparral, pine-oak woodland, beach, and riparian areas. | HP | A | May occur in non-native grasslands along the Kern River, detention basins, and unlined canals; suitable habitat; not observed during general surveys. |
| <i>Masticophis flagellum ruddocki</i> | San Joaquin whipsnake | – | SSC | Variety of habitats including desert prairie, scrubland, juniper grassland, woodland, thorn forest, farmland. | A | A | Not expected to occur; no suitable habitat; not observed during general surveys. |
| <i>Thamnophis gigas</i> | giant garter snake | FT | ST | Perennial fresh water with emergent wetland vegetation and basking sites. | A | A | Not expected to occur; outside current known range; not observed during general surveys. |
| Birds | | | | | | | |
| <i>Dendrocygna bicolor</i> | fulvous whistling-duck | – | SSC ^a | Forages in water with emergent vegetation; nests in freshwater wetlands and temporally flooded grasslands and pasture. | A | A | Not expected to occur; outside current known range; no suitable habitat; detention basin areas could develop suitable nesting habitat in wet years; not observed during general surveys. |

Table 3 (Continued)
Special-Status Wildlife Species Known to
Occur in the Project Region

| Scientific Name | Common Name | Status | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale* (Potential for Species to Occur) |
|--|---------------------------|-------------------|------------------------------|---|--|--------------------------------------|--|
| | | USFWS | CDFW | | Segment 1 | Stockdale Highway/ State Route 43 | |
| <i>Gymnogyps californianus</i> | California condor | FE | SE/FP | Forages in open habitats such as savannahs, grasslands, and foothill chaparral; nests in caves, crevices, and ledges on cliffs. | A | A | Not expected to occur for foraging or nesting; suitable foraging habitat but not known to forage in project vicinity (USFWS 1999) ^b ; no suitable nesting habitat; not observed during general surveys. |
| <i>Aquila chrysaetos</i> | golden eagle | – | FP ^{a,b} | Forages in open habitats such as grasslands, deserts, or savannahs; nests in large trees or cliffs in mountainous areas. | HP (foraging) A (nesting) | HP (foraging) A (nesting) | May occur for foraging in winter; suitable foraging habitat; not expected to occur for nesting; no suitable nesting habitat; not observed during general surveys. |
| <i>Buteo swainsoni</i> | Swainson's hawk | – | ST ^a | Forages in grasslands, ruderal vegetation, and agricultural lands; breeds in riparian forest near foraging habitat. | HP | HP (foraging) A (nesting) | May occur for foraging and nesting during the breeding season; not observed during 2009 focused surveys; potentially suitable nesting habitat along Segment 1; no suitable nesting habitat present at Stockdale Highway and State Route 43; not observed during general surveys. |
| <i>Circus cyaneus</i> | northern harrier | – | SSC ^a | Forages in scrub, riparian, and grassland habitats; nests on ground in a variety of wetland and upland habitats. | HP (foraging) A (nesting) | HP (foraging) A (nesting) | May occur for foraging; suitable foraging habitat; not expected for nesting; no suitable nesting habitat; not observed during general surveys. |
| <i>Elanus leucurus</i> | white-tailed kite | – | FP ^a | Forages in grasslands and scrublands; nests in oaks, willows, sycamores. | HP | HP (foraging) A (nesting) | May occur for foraging; suitable foraging habitat; may occur for nesting in riparian woodland/Great Valley cottonwood riparian forest; potentially suitable nesting habitat along Segment 1; no suitable nesting habitat present at Stockdale Highway and State Route 43; not observed during general surveys. |
| <i>Falco peregrinus anatum</i> | American peregrine falcon | Delisted | Delisted/ FP ^a | Forages in a variety of habitats, particularly wetlands and coastal areas; nests in cliffs. | HP (foraging) A (nesting) | HP (foraging) A (nesting) | May occur for foraging in winter; not expected to occur for nesting; no suitable nesting habitat; not observed during general surveys. |
| <i>Charadrius alexandrinus nivosus</i> | western snowy plover | FT ^{a,c} | SSC ^{a,c} | Barren sandy beaches and flats, alkali lakes. | A | A | Not expected to occur for nesting; no suitable nesting habitat; not observed during general surveys. |

Table 3 (Continued)
Special-Status Wildlife Species Known to
Occur in the Project Region

| Scientific Name | Common Name | Status | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale* (Potential for Species to Occur) |
|---|--------------------------------|-----------------|------------------|---|--|--------------------------------------|---|
| | | USFWS | CDFW | | Segment 1 | Stockdale Highway/ State Route 43 | |
| <i>Charadrius montanus</i> | mountain plover | – | SSC ^b | Grasslands or similar habitats (e.g., cultivated fields, fallow agricultural fields). | HP (wintering) A (nesting) | HP (wintering) A (nesting) | May occur for foraging in winter; suitable foraging habitat in detention basins; nests outside project region; not observed during general surveys. |
| <i>Coccyzus americanus occidentalis</i> | western yellow-billed cuckoo | FT ^a | SE ^a | Old-growth riparian habitats dominated by willows and cottonwoods with a dense understory. | A | A | Not expected to occur; no suitable habitat (riparian woodland/Great Valley cottonwood riparian forest is not dense enough); not observed during general surveys. |
| <i>Athene cunicularia</i> | burrowing owl | – | SSC ^e | Forages over open habitats such as grasslands and flat to low rolling hills in treeless terrain; also found in burrows along banks and roadsides. | HP/P | HP/A | Burrows, but no owls, observed during focused surveys conducted during the 2008 nesting season (Figure 8) (BonTerra Consulting 2008); owl observed during pre-construction surveys in December 2008 but absent during surveys in January 2009 (AECOM 2009); no burrows observed at Stockdale Highway/State Route 43; suitable foraging and nesting habitat present in all open space habitats in the biological study area. |
| <i>Empidonax traillii extimus</i> | southwestern willow flycatcher | FE | SE | Riparian forest habitats typically dominated by willows with dense understory vegetation. | A | A | Not expected to occur; no suitable habitat (riparian woodland/Great Valley cottonwood riparian forest is not dense enough); not observed during general surveys. |
| <i>Lanius ludovicianus</i> | loggerhead shrike | – | SSC ^a | Grassland and other dry, open habitats. | HP/P | HP | Expected to occur for foraging and nesting; incidentally observed during burrowing owl focused surveys in 2008 (BonTerra Consulting 2008); suitable foraging and nesting habitat. |
| <i>Vireo bellii pusillus</i> | least Bell's vireo | FE ^a | SE ^a | Riparian habitats dominated by willows with dense understory vegetation. | A | A | Not expected to occur; Kern River provides only a small amount of marginally suitable habitat; outside current known range; not observed during general surveys; absent during focused surveys conducted in 2008 for the Westside Parkway (EDAW 2008). |

Table 3 (Continued)
Special-Status Wildlife Species Known to
Occur in the Project Region

| Scientific Name | Common Name | Status | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale* (Potential for Species to Occur) |
|--------------------------------------|--|--------|---------------------|--|--|--------------------------------------|---|
| | | USFWS | CDFW | | Segment 1 | Stockdale Highway/ State Route 43 | |
| <i>Toxostoma lecontei</i> | Le Conte's thrasher | – | SSC ^f | Nests and forages in sparsely vegetated desert flats, dunes, alluvial fans, or gently rolling hills with saltbush and/or cholla. | A | A | Not expected to occur; outside current known range; not observed during general surveys. |
| <i>Agelaius tricolor</i> | tricolored blackbird | – | SE/SSC ^g | Forages in wet pastures, agricultural fields, and seasonal wetlands; nests in marsh vegetation. | HP (foraging) A (nesting) | HP (foraging) A (nesting) | May occur for foraging in non-native grasslands and detention basins; not expected to nest; no suitable nesting habitat; detention basin areas could develop suitable nesting habitat in wet years; suitable nesting habitat not observed during general surveys. |
| <i>Xanthocephalus xanthocephalus</i> | yellow-headed blackbird | – | SSC ^a | Forages in wetlands and surrounding grasslands, croplands, or savanna; nests in emergent wetland vegetation over water. | HP (foraging) A (nesting) | HP (foraging) A (nesting) | May occur for foraging in non-native grasslands and detention basins; not expected to nest; no suitable nesting habitat; detention basin areas could develop suitable nesting habitat in wet years; suitable nesting habitat not observed during general surveys. |
| Mammals | | | | | | | |
| <i>Sorex ornatus relictus</i> | Buena Vista Lake ornate shrew | FE | SSC | Wetlands with dense vegetation and abundant layer of detritus. | A | A | Not expected to occur; no suitable habitat; not observed during general surveys. |
| <i>Antrozous pallidus</i> | pallid bat | – | SSC | Forages in mixed oak and grasslands; roosts in rock crevices and tree cavities. | A | A | Not expected to occur; no suitable foraging or roosting habitat; not observed during general surveys. |
| <i>Eumops perotis</i> | western mastiff bat | – | SSC | Open semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, palm oases, chaparral, desert scrub, and urban; crevices on cliff faces for roosting. | HP (foraging) HP (roosting) | HP (foraging) A (roosting) | May occur for foraging and roosting; suitable foraging habitat; suitable roosting habitat on bridges and building structures along Segment 1; no suitable roosting habitat present at Stockdale Highway and State Route 43; not observed during general surveys. |
| <i>Ammospermophilus nelsoni</i> | Nelson's [San Joaquin] antelope squirrel | – | ST | Arid annual grassland and shrubland with sparse to moderate shrub cover; friable soils for burrows. | A | A | Not expected to occur; no suitable habitat; not observed during general surveys. |

Table 3 (Continued)
Special-Status Wildlife Species Known to
Occur in the Project Region

| Scientific Name | Common Name | Status | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale* (Potential for Species to Occur) |
|--|--------------------------|--------|------|---|--|--------------------------------------|---|
| | | USFWS | CDFW | | Segment 1 | Stockdale Highway/ State Route 43 | |
| <i>Dipodomys ingens</i> | giant kangaroo rat | FE | SE | Slopes in grasslands and shrub communities. | A | A | Not expected to occur; no suitable habitat; not observed during general surveys. |
| <i>Dipodomys nitratoideus brevinasus</i> | short-nosed kangaroo rat | – | SSC | Arid grasslands with scattered shrubs and shrublands; friable soils. | A | A | Not expected to occur; outside of current known range (distinguished from Tipton kangaroo rat based on range); not observed during general surveys. |
| <i>Dipodomys nitratoideus nitratoideus</i> | Tipton kangaroo rat | FE | SE | Alkali sink scrub and valley saltbrush scrub with widely scattered shrubs; fallow agricultural lands. | A | A | Not expected to occur; no suitable habitat; not observed during general surveys. |
| <i>Onychomys torridus tularensis</i> | Tulare grasshopper mouse | – | SSC | Arid shrubland communities. | A | A | Not expected to occur; no suitable habitat; not observed during general surveys. |
| <i>Vulpes macrotis mutica</i> | San Joaquin kit fox | FE | ST | Valley sink scrub, saltbush scrub, upper Sonoran scrub, annual grasslands, oil fields, urban areas. | HP/P | HP | Potential dens observed during focused surveys in 2008 and pre-construction surveys in 2009 (Figure 8) (AECOM 2009); no potential dens observed at Stockdale Highway/State Route 43; suitable habitat present throughout the biological study area. |
| <i>Taxidea taxus</i> | American badger | – | SSC | Grasslands and other open habitats with friable, uncultivated soils. | A | A | Not expected to occur; no suitable habitat; not observed during general surveys. |

Table 3 (Continued)
Special-Status Wildlife Species Known to
Occur in the Project Region

| Scientific Name | Common Name | Status | | General Habitat Description | Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A) ^a | | Rationale* (Potential for Species to Occur) |
|---|-------------|--------|------|-----------------------------|--|--------------------------------------|--|
| | | USFWS | CDFW | | Segment 1 | Stockdale Highway/ State Route 43 | |
| Federal Designations FE Listed by the federal government as an endangered species FT Listed by the federal government as a threatened species State Designations SE Listed as endangered by the State of California ST Listed as threatened by the State of California SSC Species of Special Concern FP Fully Protected Notes: ^a Status refers to nesting individuals ^b Status refers to wintering individuals ^c Status refers to Pacific coastal population only ^d Status refers to both coastal and interior populations ^e Status refers to burrow sites ^f Status refers only to the San Joaquin population, aka T. l. macmillanorum. ^g Status refers to nesting colonies ^h The U.S. Fish and Wildlife Service Biological Opinion for the Proposed State Route 58 between State Route 99 and Interstate 5 stated that California condor “are not likely to venture out onto the Valley floor east of Interstate 5, where the proposed project is located”. * Focused surveys were conducted for the burrowing owl and San Joaquin kit fox. Findings for other species are based on the biologist’s best judgment based on the habitat quality within the biological study area and known distributions of species within the region. ** A pre-construction survey for this species conducted for the Westside Parkway project found a single elderberry in the project footprint (AECOM 2009). This elderberry was removed as part of the Westside Parkway project (see Appendix H). Sources: Garcia and Associates 2006; BonTerra Consulting 2009c, 2008; Bakersfield Public Works Department and Federal Highways Administration 2005; Caltrans et al. 1998; U.S. Fish and Wildlife Service 1998. | | | | | | | |

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation

This chapter identifies sensitive biological resources that could potentially be affected by the project or need additional discussion. If impacts are anticipated, mitigation measures are proposed.

The determination of impacts in this analysis was based on a comparison of maps showing the project impact footprint and maps of biological resources in the biological study area. Permanent project impacts are considered in areas that would be within the project's final right-of-way. Permanent shade impacts are considered in suitable terrain under bridges where a shadow would be cast at noon. Also, if an adjacent property would be acquired and the building structures removed, the impact on the property would be considered permanent. Temporary project impacts include those necessary for grading, staging area, construction access, borrow and disposal sites, and utility relocations. If an adjacent property would be acquired but the building structures would not be removed (e.g., alternate access to the property would be provided), the impact on the property would be considered temporary.

All construction activities are assumed to be contained within the permanent or temporary impact areas for each alternative (Figures 9A–9B, 10A–10B, 11A–11B) and for the improvements at Stockdale Highway and State Route 43 (Figure 12). Both direct and indirect impacts on biological resources have been evaluated. Direct impacts are those that involve the initial loss of biological resources due to grading and construction. Indirect impacts are those that would be related to disturbance from construction or operation of the project.

The project would tie in with the recently-constructed Westside Parkway (Segment 2); therefore, some of the impact areas for the project overlap. Areas that are within the Westside Parkway have been excluded from the total impact area for the project since the vegetation was removed by the Westside Parkway project before construction of Segment 1 of the project (Tables 4 and 5).

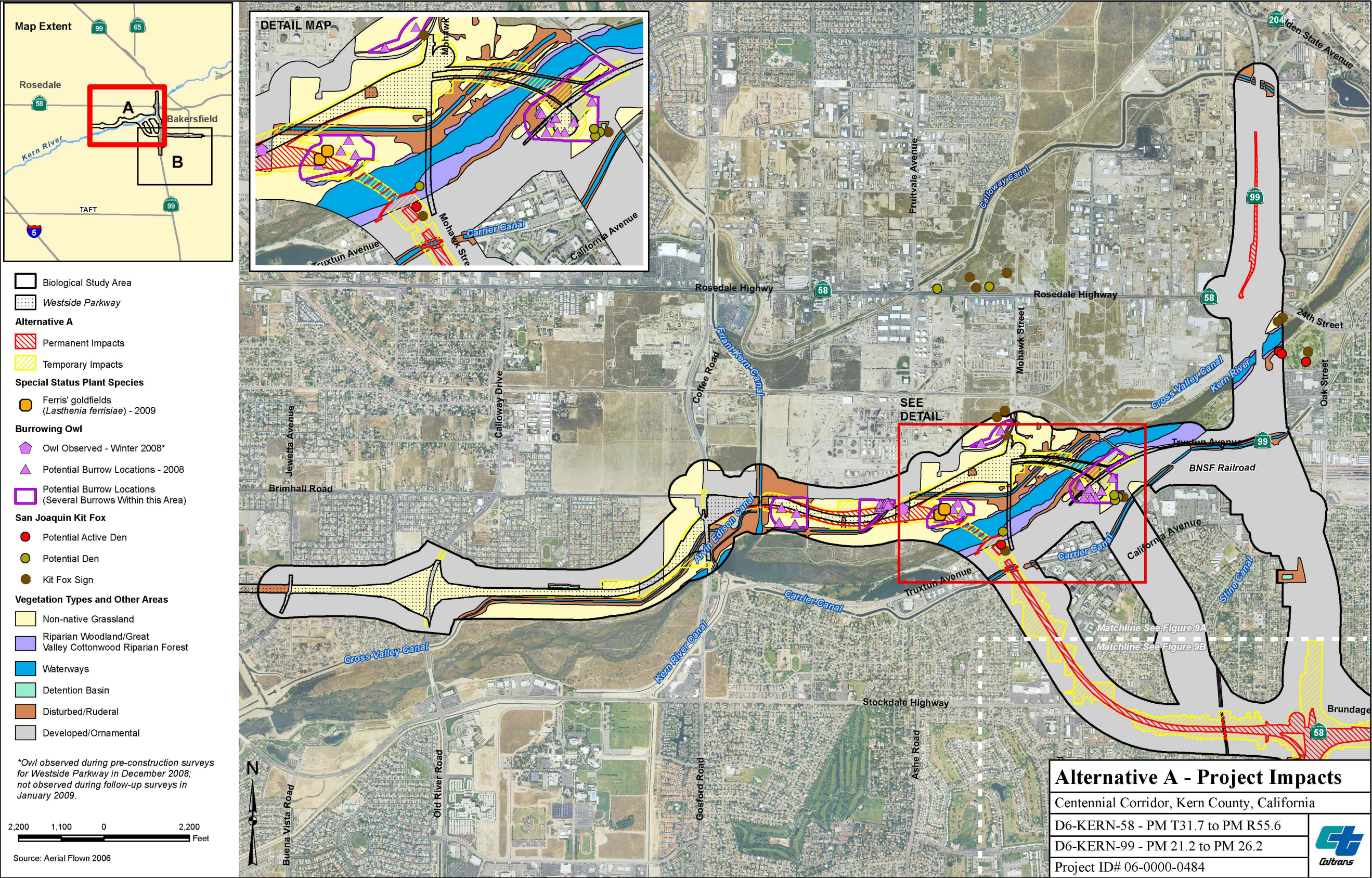
The vegetation types and jurisdictional resources that overlap with the project, but have been excluded from the impact discussion below, are shown in Tables 4 and 5.

Table 4
Vegetation Types and Other Areas Excluded from the Impact Analysis
Because They Overlap With Westside Parkway
(Mohawk Street to Truxtun Avenue)

| Vegetation Types and Other Areas | Impact (Acres) |
|---|-----------------------|
| Non-native Grassland | 7.60 |
| Riparian Woodland/Great Valley Cottonwood Riparian Forest | 0.26 |
| Waterways | 0.75 |
| Detention Basin | 0.00 |
| Disturbed/Ruderal | 1.18 |
| Agriculture | 0.00 |
| Total | 9.79 |

Table 5
Jurisdictional Areas Excluded from the Impact Analysis
Because They Overlap With Westside Parkway
(Mohawk Street to Truxtun Avenue)

| U.S. Army Corps of Engineers Jurisdiction | Impact (Acres) |
|--|-----------------------|
| <i>Kern River</i> | |
| Non-wetland Waters of the U.S. | 0.505 |
| <i>Cross Valley Canal</i> | |
| Non-wetland Waters of the U.S. | 0.171 |
| Total USACE | 0.676 |
| California Department of Fish and Wildlife Jurisdiction | |
| <i>Kern River</i> | |
| Non-wetland Waters of the State | 0.171 |
| <i>Cross Valley Canal</i> | |
| Non-wetland Waters of the State | 0.278 |
| Total CDFW | 0.449 |



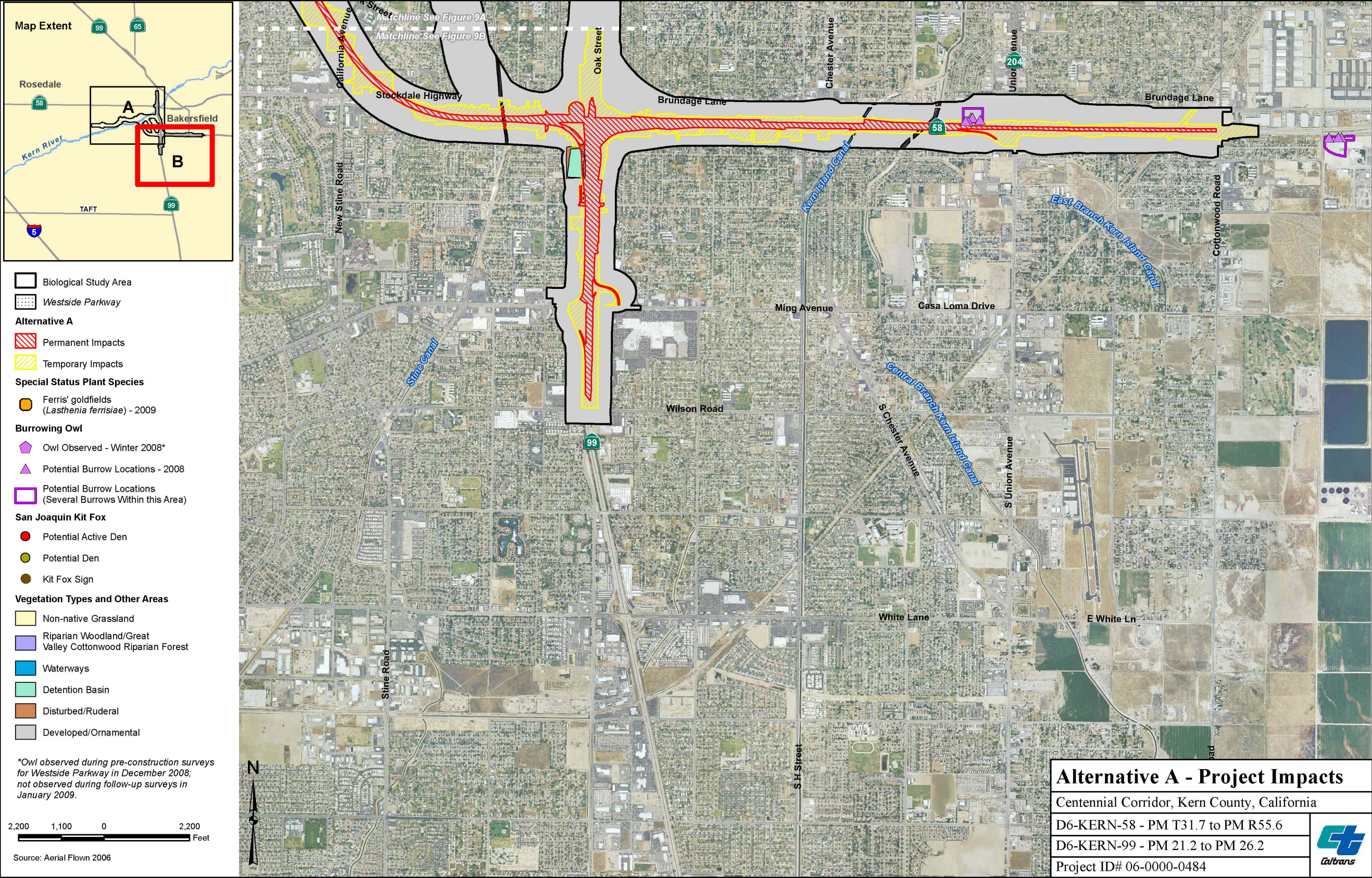


Figure 9B

